CCD-V8AFu

SERVICE MANUAL

US Model
Canadian Model

AF
Auto Focus
Video 8

September, 1985

SPECIFICATIONS

System

Video recording system	Rotary two heads, Helical scanning FM system
Audio recording system	Rotary head, FM system
Video signal	NTSC color, EIA standards
Usable cassette	8mm video format cassette
Tape speed	SP: Approx. 1.43 cm/sec. LP: Approx. 0.72 cm/sec. (playback only)
Recording or playback time	120 min. (P6−120)
Fast forward time	Approx. 3 min. (P6−90)
Image device	CCD (Charge Coupled Device)
Viewfinder	Electric viewfinder VF-207 (1" black and white)
Lens	Combined 6 × power zoom lens f = 12−72 mm, F1.4 Filter diameter: 52 mm
Auto focus system	Infrared autofocus
Color temperature	Preset values: ☼ 5,800°K 💡 3,200°K Auto: From the light at a tungsten lamp to the light on a slightly overcast day.
Minimum illumination	19 lux (F1.4) (1.8 footcandles)
Illumination range	19 lux−100,000 lux (1.8−9,294 footcandles)
Recommended illumination	More than 300 lux (28 footcandles)
Aperture correction	Approx. ±1.5

Input and output connector

MULTI CONNECTOR 24-pin	Video input: 1 Vp-p, 75 ohms unbalanced, sync negative Video output: 1 Vp-p, 75 ohms unbalanced, sync negative Audio input: −10 dBs, input impedance more than 47 kilohms Audio output: −10 dBs, output impedance less than 2.2 kilohms
Earphone jack	Minijack, 8-ohm impedance
Remote jack	5-pin connector
MIC jack	Minijack, −66 dBs, low impedance

General

Power requirements	MULTI CONNECTOR 8.5 V Battery holder 6 V/8.5 V
Power consumption	7.2W (camera recording) including the viewfinder
Installation	Horizontally, vertically
Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	−20°C to +60°C (−4°F to +140°F)
Dimensions	Approx. 126 × 191 × 350 mm (w/h/d) (5 × 7 5/8 × 13 7/8 in.)

— Continued on next page —

8 VIDEO CAMERA RECORDER

SONY®

MICROFILM

Consumer
VIDEO

Weight	Approx. 2.3 kg (5 lb 1 oz) excluding the battery and cassette Approx. 2.63 kg (5 lb 13 oz) including the battery and cassette
Microphone	Electret condenser microphone, uni-directional monaural type
Accessories supplied	Shoulder strap (1) Camera head cover (1) Sticker (1)

Optional accessories

Tuner timer unit TT-V8U, AC power adaptor AC-V8UC, Battery pack NP-22, DC pack DCP-80, Car battery cord DCC-16AW, External microphone shoe SAD-100, Remote Commander RM-84, Cable attachment VMC-540, Cable VMC-607M (2 phono plugs to 2 phono plugs), VMC-609MS (2 phono plugs to 3 phono plugs)

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UN TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS MANUEL OU DES SUPPLÉMENTS PUBLIÉS PAR SONY. LES RÉGLAGES DU CIRCUIT QUI SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT SONT IDENTIFIÉS DANS CE MANUEL. SUIVRE LES PROCÉDURES QUAND LES COMPOSANTS CRITIQUES SONT REMPLACÉS OU LE FONCTIONNEMENT IMPROPRE EST SUSPECTÉ.

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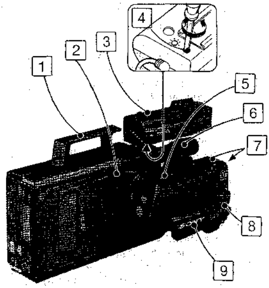
SECTION 1
GENERAL

A



1-1. LOCATION AND FUNCTION OF PARTS AND CONTROLS

A

1 **Handle**

2 **VIEWFINDER jack**
Connect the plug of the viewfinder cable.

3 **Accessory shoe**
Attach an optional external microphone or video light (up to 500 g, 1 lb).

4 **☼ (brightness) control screw** (blue screw on the bottom of the viewfinder)
Turn with a Philips screwdriver to adjust the brightness of the viewfinder screen, if necessary.

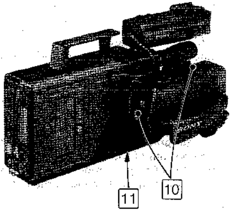
5 **Power zoom button [p.21]**
Press for smooth power zooming between wide-angle (W) and telephoto (T) positions.

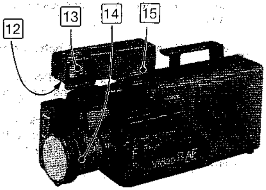
6 **Microphone**
Sound is recorded simultaneously while shooting.

7 **BATTERY compartment and battery ejector**
Insert an NP-22 battery pack, ACP-80UC ac pack or DCP-80 dc pack with the metal terminals facing the unit.
To remove the battery pack, ac pack or dc pack, push the bottom of the pack and at the same time slide the ejector in the direction of the arrow. The pack will then slide out.

8 **Lens cap hook**
Snap the lens cap here when it is not in use.

9 **Grip strap**
Adjust this so that your fingertips can easily manipulate the START/STOP button.





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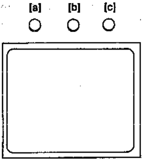


10 START/STOP button [p.13, p.17]
Press to start or stop camera recording.

11 Tripod receptacle
Attach an optional tripod (U1/4" × 20 UNC).

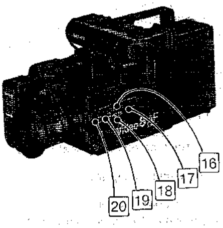
12 Viewfinder lens adjustment lever [p.16]
Adjust to your eyesight to assure good focus. Be sure to adjust when shooting for the first time or after another person has used the camera.

13 Electric viewfinder
The lamps inside the viewfinder light or blink during camera recording.

- [a] **Low light lamp (yellow):** Lights when the light is insufficient.
- [b] **Tape run/battery lamp (red):** Functions when the camera section is turned on. Lights steadily during recording.
  Blinks when the inserted battery is exhausted, when the tape comes to an end, or when the tab on the inserted cassette is set to prevent erasure of a recording.
- [c] **White balance lamp (orange):** Functions when the low light lamp is not lit. Lights steadily when the WHITE BALANCE switch is set to ☼ or 💡.
  Blinks when the white balance is not adjusted. Goes out when the WHITE BALANCE switch is set to ↴, and the white balance has been adjusted.

14 Focus ring [p.20]
When manually focusing by setting the FOCUS switch to "MAN", turn the ring to focus while looking through the viewfinder.

15 Viewfinder slide button [p.15]
When you use your left eye, press this button and pull the viewfinder in the direction of the arrow until it locks. You can also remove the viewfinder.



16 CAMERA POWER switch and lamp [p.12]
Slide to the right to turn on the camera section. The lamp lights up. The recorder section is turned on simultaneously if it has not been powered yet. However, at this point the function buttons on the recorder section, except for the VTR POWER switch and EJECT button, will not work so that the recording operation is protected.
To turn off the entire unit, slide again and the lamp goes off.
When a TT-V8U tuner timer unit is connected, this switch does not function.

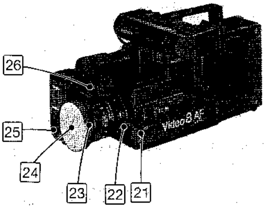
17 ⊜ REC REVIEW button [p.18]
Press when the unit is set in the CAMERA mode or VTR-CAMERA mode, and then is set in the pause mode during recording, to review the last few seconds of the recorded picture.

18 Aperture switch [p.21]
The amount of light entering the camera is determined by this switch.

■ (center):	Normally set to this position.
BACK LIGHT:	Set to this position when the subject is back lit.
HIGH LIGHT:	Set to this position when the subject is too brightly lit against the background.

19 WHITE BALANCE switch
To adjust white balance, slide the switch all the way down and return it to the automatic position (•⅂), or set it to the proper position according to the prevailing light conditions.
☼ : Sunlight (outdoors)
💡 : Artificial light (indoors)
•⅂ : Automatically adjusted

20 FOCUS switch [p.17, p.20]
Set to AUTO for the automatic focusing function of this camera recorder to activate. Set to MAN (manual), when you desire to focus manually.



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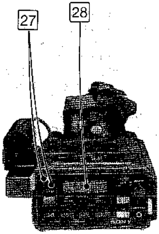

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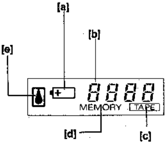


21 **PUSH AUTO button [p.20]**
Even while the FOCUS switch is set to "MAN" for manual focusing, you can activate the automatic focusing function by keeping this button depressed.

22 **Manual zoom lever [p.21]**
Turn the zoom lever for manual zooming between the wide-angle and telephoto positions.

23 **Lens hood**
Usually attached to the lens ring. Remove when attaching other optional lenses.

24 **White lens cap [p.16]**

25 **Infrared beam emitter**
Transmits an infrared beam toward the object to be shot for auto focusing.

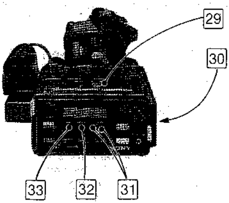
26 **Infrared beam detector**
The infrared beam transmitted by the infrared beam emitter and then reflected from the object to be shot is received here for the auto focusing of the recorder to function.

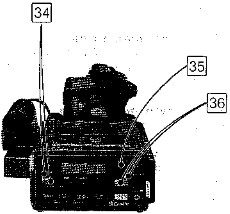
B

27 **VTR POWER switch and lamp [p.12]**
Press to turn on the recorder section. The lamp lights up. Press again to turn it off. When an AC-V8UC ac power adaptor or a TT-V8U tuner timer unit is connected, use the power switch of the connected unit as this switch does not function.

28 **Display window**

[a] Blinks when the inserted battery is exhausted.
[b] The counter changes as the tape moves.
[c] Blinks when the recorder is in the CAMERA mode and no cassette is inserted, the recorder is in the CAMERA mode and the tab on the cassette is out, or the tape comes to an end during recording.
[d] Indicates that the MEMORY function is activated.
[e] Blinks when the moisture has condensed inside the unit.





29 Cassette holder

30 MULTI CONNECTOR [p.22]
Connect to an RFU-80UC RFU adaptor, an AC-V8UC ac power adaptor or TT-V8U tuner timer unit. To open the lid, slide it in the direction of the arrow.

31 INSERT button and lamp [p.31]
Press to insert a recording onto a previously-recorded tape when the recorder is set in the playback pause mode. The lamp lights during operation.

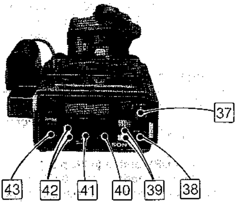
32 MEMORY button [p.26, p.31]
To return the tape to the "0000" point, press this button and the MEMORY mark appears. Then press the ◀◀ or ▶▶ button. On insert recording, the recording stops automatically at the "0000" point.

33 RESET button [p.26, p.31]
Press to reset the counter to "0000".

34 EJECT button and lamp [p.32]
On cassette insertion or ejection, slide down this button after turning on the unit and the cassette compartment will pop up.

35 EDIT switch
Normally keep this switch at the left position. When recording the playback of this camera recorder with another VTR or video camera recorder, set to the right "EDIT" position.

36 ● (record) switch and lamp [p.13]
Slide to the right to start recording when only the recorder section is turned on. The lamp lights. When the CAMERA POWER switch is turned on after turning on the recorder section, the recorder is set in the recording pause mode. To start recording, press the ❚❚ or START/STOP button. When only the camera section is turned on, this switch does not function.



37 REMOTE connector (5-pin)
Connect the wired Remote Commander RM-84.
The optional RM-E100 editing controller is also connected here.

38 EARPHONE jack (mini type) [p.18]
Connect an earphone to monitor the sound being recorded during camera or insert recording, or the playback sound while viewing the playback picture in the viewfinder.

39 ❚❚ (pause) button and lamp
Press to stop the tape for a moment during recording or playback. The lamp lights. During playback of a recorded tape, a still picture is obtained. Press again to release the pause mode.

40 ■ (stop) button
Press to stop the tape.

41 ▶▶ (fast forward) button
Press to advance the tape. Pressing this button during playback lets you see a high-speed playback.

42 ▶ (play) button and lamp
Press to play back a tape.

43 ◀◀ (rewind) button
Press to wind the tape back. Pressing this button during playback lets you see a high-speed playback in reverse.

1-2. POWER SOURCES

SELECTION OF POWER SOURCES

Operate the unit on one of the following power sources. This manual shows the operations on the battery pack, the ac pack and the car battery. For operation on other power sources, see the instruction manual furnished with the equipment to be used.

		Power source	Accessory to be used
Place	Outdoors	Battery pack	Battery pack NP-22
	Indoors	House current	AC pack ACP-80UC
			AC power adaptor AC-V8UC
			Tuner timer unit TT-V8U
	In the car	12 V or 24 V car battery	DC pack DCP-80 and car battery cord DCC-16AW

When the TT-V8U is connected
The following operations are possible.

- Power supply for the CCD-V8AFU
- Battery charge
- Playback of a tape
- TV program recording
- Timer recording
- Tape editing

For details on connections and operations, please read the instruction manual furnished with the TT-V8U.

When the AC-V8UC is connected
The following operations are possible.

- Power supply for the CCD-V8AFU
- Battery charge
- Playback and recording of a tape
- Tape editing

For details on connections and operations, please read the instruction manual furnished with the AC-V8UC.

THREE MODES OF OPERATION

The CCD-V8AFU video camera recorder is equipped with two power switches, the CAMERA POWER switch and VTR POWER switch. Press either or both of these switches according to the operating modes below.

Modes and their uses

Operating mode	Power switch to press	Lamp that lights up	Operable buttons	Power switch to turn off
CAMERA mode Useful for camera recording. (The buttons irrelevant for recording will not work when pressed.)	CAMERA POWER switch	CAMERA POWER lamp	VTR POWER START/STOP REC REVIEW Power zoom WHITE BALANCE Aperture EJECT RESET MEMORY	CAMERA POWER switch
VTR mode Useful for playback or TV program recording. The camera section's power is saved.	VTR POWER switch	VTR POWER lamp	EJECT ◀◀ ▶ ▶▶ ■ ❚❚ ● RESET MEMORY INSERT CAMERA POWER	VTR POWER switch
VTR-CAMERA mode Useful for playback during camera recording or insert camera recording.	VTR POWER switch and CAMERA POWER switch	CAMERA lamp and VTR lamp	all buttons	VTR POWER switch or CAMERA POWER switch

When an AC-V8UC ac power adaptor is connected

The VTR POWER switch of the video camera recorder will not work. **To turn the video camera recorder on or off, use the VTR POWER switch of the AC-V8UC ac power adaptor.** Press the VTR POWER switch of the ac power adaptor so that the recorder section of the video camera recorder will be turned on for the VTR mode. To turn on the camera section too for the VTR-CAMERA mode, slide the CAMERA POWER switch on the recorder. To turn off only the camera section, slide the CAMERA POWER switch again. To turn off the entire unit, press the VTR POWER switch on the ac power adaptor.

The video camera recorder cannot be set in the CAMERA (only) mode with the adaptor connected.

When a TT-V8U tuner timer unit is connected

The VTR POWER switch and the CAMERA POWER switch of the video camera recorder will not work. To turn the video camera recorder on or off, use the POWER switch of the TT-V8U tuner timer unit.

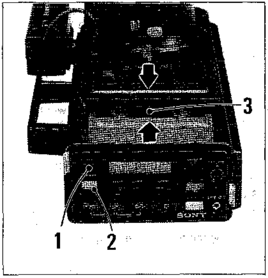
- **To set this video camera recorder to the VTR mode,**
set the INPUT SELECT switch of the TT-V8U to TUNER for recording TV programs or to LINE for recording the input signals from the AUDIO/VIDEO IN jacks of the TT-V8U.
- **To set this video camera recorder to the VTR-CAMERA mode,**
set the INPUT SELECT switch of the TT-V8U to CAMERA.

The video camera recorder cannot be set in the CAMERA (only) mode with the tuner timer unit connected.

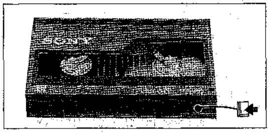
Recording operation of each mode

Operating mode	**How to record**
CAMERA mode	When the CAMERA POWER switch is turned on, this unit is automatically set in the recording pause mode. Press the START/STOP button to start recording.
VTR mode	Slide the ● switch to start recording.
VTR-CAMERA mode	When the ● switch is slid or when the CAMERA POWER switch is turned on after turning on the VTR POWER switch, this unit is set in the recording pause mode. Press the ❚❚ or START/STOP button to start recording.

C-1



C-2



1-3. CASSETTE CARE

Always insert a cassette in the correct direction. Never insert it upside down.

CASSETTE INSERTION C-1

1 Turn on the power. (See page 12. Any operating mode is usable.)
2 Press the EJECT button and the cassette compartment will pop up.
3 Insert a cassette with the window upwards and the arrow mark in front.
4 Push down the cassette compartment.

CASSETTE EJECTION

1 Turn on the power.
2 Press the EJECT button.
3 Take the cassette out and push down the cassette compartment.

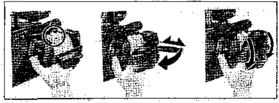
THE TAB ON THE CASSETTE C-2

(The photo is Sony type.)

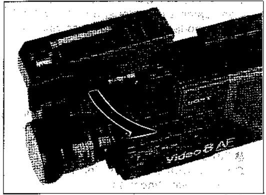
When a new recording is made on a previously recorded cassette, the previous recording will be automatically erased. To avoid erasing a recording, slide the tab out to cover the opening.
When the tab is out, a recording cannot be made. To re-record on a cassette, slide the tab in.

Note
Never insert anything in the small holes on the rear of the cassette. These holes are used to sense the kind of tape, thickness of tape, if the tab is out or in, etc.

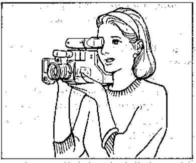
D-1



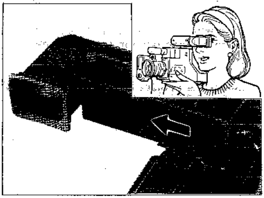
D-2



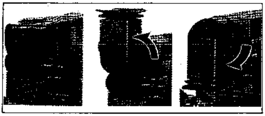
D-3



D-4



D-5



1-4. CAMERA RECORDING

HOW TO HOLD THE CAMERA

Adjusting the grip strap D-1

1 Position your right hand so that your fingertips can easily manipulate the START/STOP button and the power zoom button.
2 Open the cover and adjust the strap so that your grip on the camera feels secure.
3 Close the cover.

Set the viewfinder D-2

Turn the viewfinder until it locks (90 degrees).

Place your right hand through the grip strap and your left hand under the video camera recorder to support it. D-3

For stable shooting, hold the upper arm firmly against the body.

When you use your left eye D-4

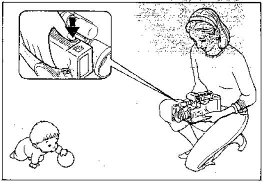
Press the viewfinder slide button and pull the viewfinder out until it locks.

The viewfinder can be turned 90 degrees up and down to make high-angle or low-angle recording possible. D-5

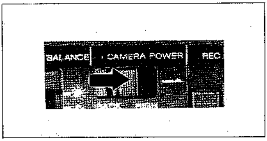
When shooting from a low angle D-6

Turn the viewfinder upward so that you can look into it from above. When shooting, use the start/stop button on the upper surface of the grip.

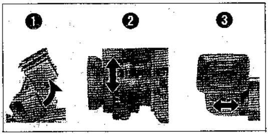
D-6



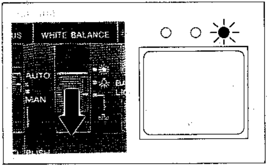
E-1



E-2



E-3



RECORDING

The NP-22 battery pack is used as the power source.

1 **Slide the CAMERA POWER switch to turn on the power (CAMERA mode) and insert the cassette into the cassette holder.** E-1
The CAMERA POWER lamp lights up. The video camera recorder enters the recording pause mode and the recording and pause lamps light up.

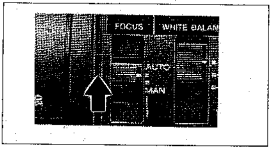
2 **Adjust the viewfinder lens.** E-2
The distance of optimum vision varies from person to person.
Viewfinder lens adjustment is necessary when using the camera for the first time or after another person has used it.
❶ Lift up the viewfinder lens.
❷ Focus with the focus ring while observing the viewfinder screen.
❸ Replace the viewfinder lens and set the viewfinder lens adjustment lever so that the subject in the viewfinder is in focus.

3 **Adjust the white balance (automatic adjustment).** E-3
With the white cap on the lens, point the camera at a light source (indoors) or a subject (outdoors) from a distance of at least two meters. Slide the WHITE BALANCE switch all the way down to ⊡; the white balance switch will immediately return to the ⌝ position. The white balance is now adjusted.

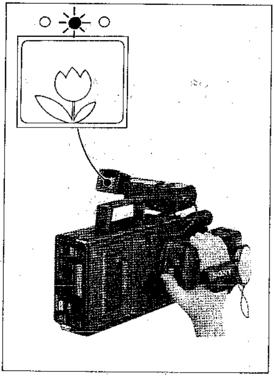
After white balance has been adjusted, the white balance lamp in the viewfinder goes out.

4 **Select the subject to be recorded through the viewfinder.**

E-4



E-5



5 **Set FOCUS switch to AUTO.** E-4

6 **Press the START/STOP button to start recording.** E-5
The red lamp in the viewfinder lights up.

To stop recording, press the START/STOP button again.
The red lamp in the viewfinder goes out and the video camera recorder enters the recording pause mode.
- If you leave the recorder in the pause mode for seven minutes or more, the power of the recorder will be automatically turned off.
- A vertical band may appear when a subject such as a candle flame or a light is shot against a dark background.

After using the video camera recorder, slide the CAMERA POWER switch again. The CAMERA POWER lamp goes out.

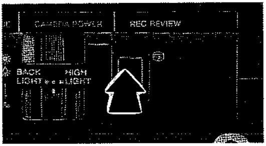
Note
Never record an extremely bright object just after recording under dark conditions; otherwise vertical streaks may appear in the picture and be recorded as well.

SMOOTH RECORDING

Smooth recording can be made even if the recording is stopped and started again, or even if the power is turned off and on again, provided that the cassette is not removed.
Recording should be started from the recording pause mode. If the cassette has been removed, proceed as follows:

1. Play back the tape to get the point from which the recording is to begin again, referring to the "MONITORING THE PLAYBACK PICTURE ON THE VIEWFINDER SCREEN" on page 18 and stop the tape with the ■ button.
2. Set the recorder to the VTR-CAMERA mode by sliding the CAMERA POWER switch.
3. Slide the ● (record) switch to the right and press the START/STOP button or ❚❚ button to start recording.

F



INSTANT REPLAY ON THE SPOT (Record review)

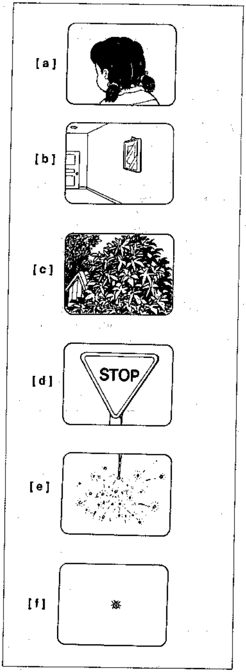
When the recorder is set in the CAMERA mode or VTR-CAMERA mode, and then is set in the recording pause mode, the last few seconds of the recording can be played back on the viewfinder screen.

1 When the scene you want to record is finished, press the START/STOP button to stop the tape.
2 Press the ⊜ REC REVIEW button. F
The last few seconds of the recorded scene are played back in reverse, and then played back normally.
After playing back the tape up to the end of the recorded portion, the recorder enters the recording pause mode.
3 To restart recording, press the START/STOP button.

MONITORING THE PLAYBACK PICTURE ON THE VIEWFINDER SCREEN

If the recorder is in the CAMERA mode, turn off the CAMERA POWER switch and turn the VTR POWER switch on. Lift up the viewfinder lens to monitor the recorded picture on the viewfinder screen, and rewind and play back the tape. To monitor the playback sound, connect an earphone to the EARPHONE jack.

G



1-5. AUTO FOCUSING

This video camera recorder focuses by transmitting an infrared beam toward the subject and receiving the reflected beam with an infrared beam detector.

For almost any subject centered in the viewfinder, auto focusing will activate. However, for some subjects listed below, auto focusing does not work correctly and manual focusing is required.

Objects for which the auto focusing does not activate G

- **Black objects which absorb the infrared beam**

[a] Ex. dark curtain or shade.

- **Objects in which the infrared reflection disperses**

[b] Ex. a smooth surface aimed at from an angle. Auto focusing activates if it is aimed at squarely.

- **Objects in which the infrared reflection is not sufficient**

[c] Ex. bushes, grass or plants in the telephoto position.

- **Objects in which the infrared beam is reflected too much.**

[d] Ex. traffic signs, a white wall, mirror, or subject through plate glass.

- **Objects which are not solid**

[e] Ex. fireworks, candle flame or smoke.

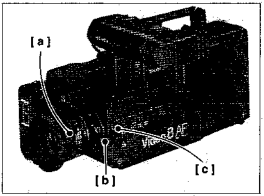
- **Objects which are extremely small and do not cover more than 1/10 of the viewfinder's view.**

[f] Ex. insects

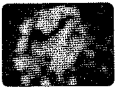
Notes

- Auto focusing works up to about 13 meters (43 feet). Adjust the focus manually for a subject more than 13 meters away.
- If conversion lenses or special effect filters are used, focus should be set manually.
- If the lens or the infrared beam detector are dirty, auto focusing does not function correctly. Wipe and clean with a soft cloth.
- When using the auto focus function, do not turn or stop the focus ring forcibly. Do not look into the infrared beam emitter for a long time.

H-1



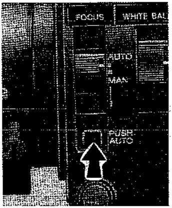
H-2



H-3

H-4

I



1-6. MANUAL FOCUSING H-1

[a] Focus ring
[b] Manual zoom lever
[c] FOCUS switch

1. Set the FOCUS switch to MAN.
2. Turn the manual zoom lever to the telephoto position (72) to make the subject as large as possible in the viewfinder. H-2
3. Turn the focus ring to achieve sharp focus. H-3
4. Set the desired shot length using the manual zoom lever. H-4

SOME HELPFUL HINTS

- Focusing with the lens in wide angle can lead to shots being out of focus. This is because the focusing field is wider than in telephoto, making it harder to achieve definite and sharp focus. Therefore, if the subject is focused in the lens' telephoto position, it will stay in perfect focus regardless of subsequent zooming operation. Focus needs to be reset only if the distance between the camera and the subject changes.
- When shooting a scene with lots of movement in bright light, the subject can be kept in good focus regardless of movement by setting the zoom lever to 12 and the focus ring to 2 m.
- The figures on the focus ring indicate the distance between the subject and the ϕ mark on the side of the recorder body.
- When shooting in low light situations, such as indoors, the depth of field for proper focus becomes very shallow. For best results, set the focus in telephoto, and shoot at wide angles.
- If the focal length is less than 1.3 m (approx. 4 ft), remove the lens hood of this camera and attach an optional closeup camera lens instead.

QUICK FOCUS ADJUSTMENT I

For quick, automatic adjustment of focus while recording in the manual mode, simply press the PUSH AUTO button until the subject is correctly focused.

If you press the PUSH AUTO button before starting recording, you can get a well-focused picture from the beginning of the recording.

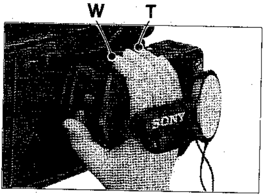
1-7. ZOOMING

Either manual zoom or power zoom can be used. To make zooming more effective, shoot a still scene for a few seconds at the beginning and the end of zooming.

POWER ZOOM J-1

Press T for telephoto and W for wide-angle.

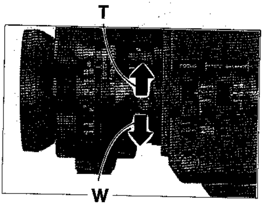
J-1



MANUAL ZOOM J-2

For special effects, when extra fast or very slow zooms are required, manual zooming should be used.

J-2



1-8. IRIS ADJUSTMENT

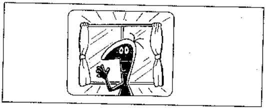
The iris is adjusted automatically with the aperture switch set to ■ (center). When shooting a scene with strong contrast such as the ones described as follows, adjust the aperture switch to BACK LIGHT or HIGH LIGHT.

- When a backlit shot results in the subject being too dark..........set to BACK LIGHT. K-1
- When a subject is too bright against a dark back ground..............set to HIGH LIGHT. K-2

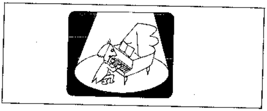
Notes

Be sure the picture in the viewfinder has the proper brightness, when the aperture switch has been set to BACK LIGHT or HIGH LIGHT. Wrong selection of the position results in a picture that is too bright or too dark.

K-1



K-2



1-9. PLAYBACK OF THE RECORDED TAPE

The following connections are only for viewing tapes.
When you are away from home and still want to see the playback picture with an available TV, select one of the following ways.

With following connections, TV programs can be viewed as usual.
If you also want to record a TV program, see page 27.

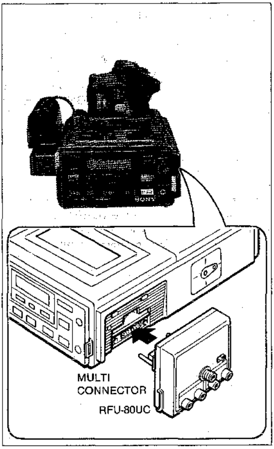
CONNECTION

Before making connections, be sure to unplug the ac power cords of all the equipment.

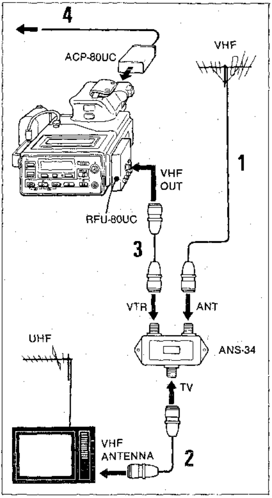
With the supplied ACP-80UC ac pack and RFU-80UC RFU adaptor L-1
Connect the RFU-80UC RFU adaptor to the MULTI CONNECTOR of the video camera recorder and insert the ACP-80UC ac pack into the battery holder.

Note
When connecting the RFU-80UC, gently align the guides and holes of the RFU adaptor with the pins and holes of the MULTI CONNECTOR. Do not jam the adaptor in as this will damage the pins of the CONNECTOR.

L-1



L-2

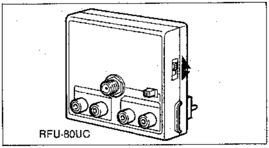


Connecting a TV without audio/video input jacks L-2

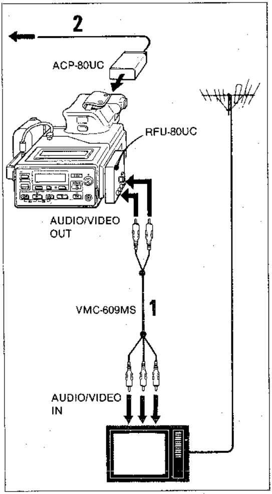
1. Disconnect the VHF antenna cable from the antenna terminal of the TV and connect it to the ANT connector of the supplied ANS-34 antenna selector.
2. Connect the TV connector of the ANS-34 to the VHF antenna terminal of the TV with the 75-ohm coaxial cable (supplied).
3. Connect the VTR connector of the ANS-34 to the VHF OUT connector of the RFU adaptor with the 75-ohm coaxial cable (supplied).
4. Connect all the ac power cords to the ac outlets.

- Set the selector switch of the ANS-34 as follows.
  For viewing playback picture, set to VTR.
  For TV program viewing, set to ANT.
- Set the VHF/LINE selector of the RFU-80UC to VHF.

L-3



L-4



On the TV channel for the video camera recorder L-3

Whenever you view the playback picture, set the RF UNIT selector of the RFU-80UC to either VHF channel 3 or 4 and select the same channel at the RFU-80UC on the TV.

Connecting a TV/Component TV which is equipped with the audio/video input jacks L-4

Leave the antenna cable connected to the antenna terminal of the TV.

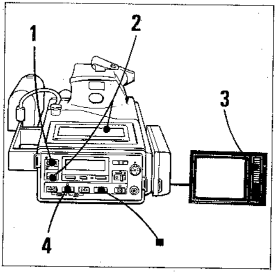
1 Connect the AUDIO/VIDEO OUT jacks of the RFU-80UC to the audio/video input jacks of the TV with an optional VMC-609MS audio video cable.
2 Connect all the ac power cords to the ac outlets.

- Set the VHF/LINE selector of the RFU-80UC to LINE.
- With this connection, you don't have to select the channel for the video camera recorder. Instead, set the TV/VIDEO select button of the TV as follows.

  For TV program viewing, set to the TV mode.

  For viewing a playback picture, set to the VIDEO mode.

L-5



OPERATION L-5

The viewfinder cable need not be connected.

1 Turn on the power of the equipment to be used.

2 Insert a cassette.

3 Turn on the TV or Component TV.
  When a TV without audio/video input jacks is connected, select the channel which is adjusted for the video camera recorder.
  When a TV with the audio/video input jacks is connected, set the TV/VIDEO select button to the VIDEO mode.

4 Press the ▶ button of the video camera recorder.
  The lamp lights and the playback starts.

To stop the playback, press the ■ button.

When the tape comes to an end, the unit automatically stops.

Note
In the playback picture of a tape recorded in the LP mode, the color intensity may change repeatedly.

DIFFERENT FORMS OF PLAYBACK

To obtain a still picture
Press the ❚❚ button during playback.
Streaks will appear in the still picture. The sound will be muted. To resume normal playback, press the ❚❚ button again.
When the pause mode lasts for more than approximately 7 minutes, the pause mode will be automatically released and the unit will be set in the stop mode.

To view the picture at high speed
Keep pressing the ▶▶ or ◀◀ button during playback. For high-speed playback picture in the forward direction, press the ▶▶ button. For high-speed playback picture in the reverse direction, press the ◀◀ button.
Streaks will appear in the high-speed pictures.
The sound will be muted.
Release the button for normal playback.

1-10. USE OF THE TAPE COUNTER

TO INDEX THE WHOLE TAPE

When the unit is turned on, the tape counter will appear in the display window. Press the RESET button at the beginning of the tape so that the counter shows "0000". By noting the counter reading at a particular point, you can easily find that point later by referring to the tape counter.
Write the counter readings you want to remember on the label of the cassette.

TO RETURN TO A PRE-REGISTERED POINT

During recording or playback, press the RESET button at the point you later want to locate. The counter will be set at "0000".

1. Press the ■ button to stop the tape, when the recording or playback has finished.
2. Press the MEMORY button and the "MEMORY" mark will appear in the display window.
3. Press the ▶▶ or ◀◀ button.
   The tape will be sent forward or in reverse and stop automatically when the counter reaches "0000".

Notes

- While the "MEMORY" mark appears in the display window, the counter cannot be reset to "0000", therefore, press the MEMORY button to cancel the function and then press the RESET button.
- The counter reading and the point of the tape may not correspond exactly.

1-11. TV PROGRAM RECORDING

The following connections make both TV program viewing/recording and tape playing possible.

The viewfinder cable need not be connected.

PREPARATION

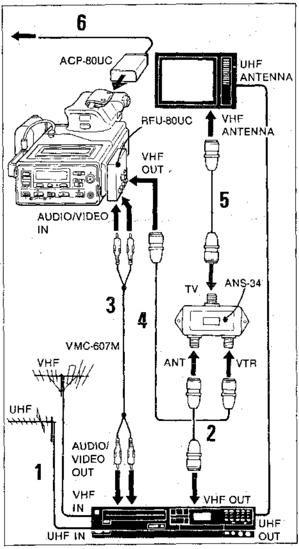
Before making connections, be sure to unplug the ac power cords of all the equipment.

With the ACP-80UC ac pack and RFU-80UC RFU adaptor

Connect the RFU-80UC RFU adaptor to the MULTI CONNECTOR of the video camera recorder and insert the ACP-80UC ac pack into the battery holder. (See page 22.)

Connecting a TV without audio/video input jacks and a VTR without an input select switch M-1

M-1



CONNECTION

1 Connect the UHF/VHF antenna cables to the VHF/UHF IN terminals of the VTR.

2 Connect the VHF OUT terminal of the VTR to the ANT connector of the ANS-34 with the antenna cable supplied with the RFU-80UC.

3 Connect the audio/video output jacks of the VTR to the AUDIO/VIDEO IN jacks of the RFU-80UC with the optional VMC-607M audio video cable.

4 Connect the VTR connector of the ANS-34 to the VHF OUT connector of the RFU-80UC with the antenna cable supplied with the RFU-80UC.

5 Connect the TV connector of the ANS-34 to the VHF antenna terminal of the TV with an optional antenna cable.

6 Connect all the ac power cords to the ac outlets.

- Set the VHF/LINE selector of the RFU-80UC to VHF.
- Set the RF UNIT selector of the RFU-80UC to either VHF channel 3 or 4 which is not active in your area.
- Set the selector of the ANS-34 as follows.
  For viewing a playback picture of the CCD-V8AF/AFU, set to VTR.
  For viewing TV programs or playback picture of the VTR, set to ANT.

OPERATION

Recording

1 Turn on the power of the equipment.
2 Set the selector switch of the ANS-34 antenna selector to VTR.
3 Insert the cassette into the CCD-V8AFU.
4 Select the channel to be recorded with the channel select button on the VTR and set the channel of the TV for the CCD-V8AFU.
5 Slide the ● switch of the CCD-V8AFU. Recording will start.

Playback

1 Turn on the power of the CCD-V8AFU and the TV.
2 Set the selector switch of the ANS-34 antenna selector to VTR.
3 Select the channel for the video camera recorder on the TV.
4 Insert the cassette into the CCD-V8AFU and press the ▶ button. Playback will start.

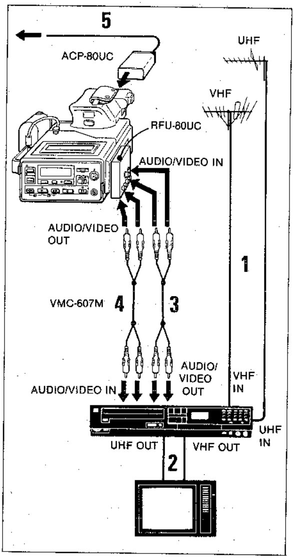
Recording one TV program while viewing another

1 Set the TV/VTR select button on the VTR to TV and the selector switch of the ANS-34 to ANT.
2 Select the desired channel on the TV.

Connecting a TV without audio/video input jacks and a VTR with an input select switch

M-2

M-2

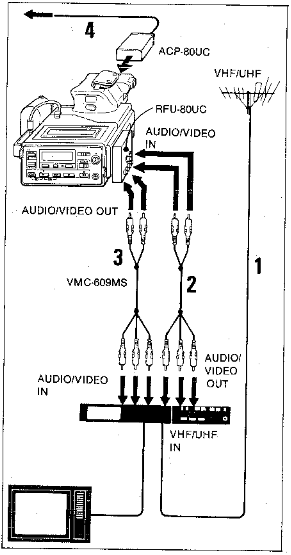


CONNECTION

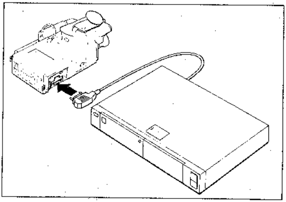
1 Connect the VHF/UHF antenna cables to the VHF/UHF IN terminals of the VTR.
2 Connect the VHF/UHF OUT terminals of the VTR to the VHF/UHF terminals of the TV with the proper antenna cables.
3 Connect the audio/video output jacks of the VTR to the AUDIO/VIDEO IN jacks of the RFU-80UC with the optional VMC-607M audio video cable.
4 Connect the AUDIO/VIDEO OUT jacks of RFU-80UC to the audio/video input jacks of the VTR with an optional VMC-607M audio video cable.
5 Connect all the ac power cords to the ac outlets.

- Set the VHF/LINE selector of the RFU-80UC to LINE.
- Set the RF UNIT selector of the VTR to either VHF channel 3 or 4 which is not active in your area.

M-3



M-4



OPERATION

Recording

1. Turn on the power of the equipment.
2. Insert the cassette into the CCD-V8AFU.
3. Set the input select switch of the VTR to TUNER and TV/VTR select button to VTR.
4. Select the channel to be recorded with the channel select button on the VTR and set the channel of the TV for the VTR.
5. Slide the ● switch of the CCD-V8AFU. Recording will start.

Playback

1. Turn on the power of the equipment.
2. Set the input select switch of the VTR to LINE.
3. Set the channel of the TV for the VTR.
4. Insert the cassette into the CCD-V8AFU and press the ▶ button. Playback will start.

Recording one TV program while viewing another

1. Set the TV/VTR select button on the VTR to TV.
2. Select the desired channel on the TV.

When a stereo VTR is used, use an optional VMC-609MS audio video cable instead of the VMC-607M.

Connecting a TV with audio/video input jacks, or a Component TV and a TV tuner M-3

CONNECTION

The Component TV should be connected to the TV tuner first.

1. Connect the antenna cable to the antenna terminal of the TV tuner.
2. Connect the audio/video output jacks of the TV or the TV tuner to the AUDIO/VIDEO IN jacks of RFU-80UC with an optional VMC-609MS audio video cable.
3. Connect the AUDIO/VIDEO OUT jacks of the RFU-80UC to the audio/video input jacks of the TV or the TV tuner with an optional VMC-609MS audio video cable.
4. Connect all the ac power cords to the ac outlets.

The optional TT-V8U tuner timer unit can be connected directly to the MULTI CONNECTOR of this camera recorder. M-4

OPERATION

Recording

1 Turn on the power of the equipment to be used.
2 Insert the cassette into the CCD-V8AFU.
3 Set the input select button of the TV or the TV tuner to TV, and select the channel to be recorded.
4 Slide the ● switch of the CCD-V8AFU. Recording will start.

Playback

1 Turn on the power of the equipment.
2 Set the input select button of the TV or the TV tuner to VIDEO.
3 Insert the cassette into the CCD-V8AFU and press the ▶ button. Playback will start.

TO STOP THE TAPE MOMENTARILY

Press the ❚❚ button. The TV program can be seen on the TV but the picture will not be recorded.
To resume recording, press the ❚❚ button again.
When the recording pause mode lasts for approximately 7 minutes, the pause mode will be automatically released and the unit will be set in the stop mode.

With the above connections, TV programs can be viewed as usual.

Notes

- When the unit is set in the VTR-CAMERA or the CAMERA mode, a TV program cannot be recorded as the camera takes precedence. For TV program recording, turn on the VTR power only.
- When the tape comes to an end, the "TAPE" mark will blink in the display window. When the tape has ended, the unit will be automatically set in the stop mode.

1-12. INSERT RECORDING

You can insert (record) video and audio simultaneously from the camera, a TV or a VTR onto any recorded tape.

PREPARATION

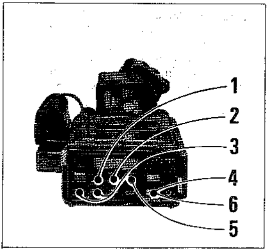
Make the necessary connections. For details on each connection and operation, refer to the corresponding page.

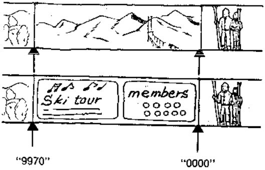
To insert camera recording [p.16]
Set the video camera recorder in the VTR-CAMERA mode by pressing the VTR POWER and CAMERA POWER switches.

To insert a TV program [p.27]
Make the necessary connections as described in TV program recording.

To insert a recording from a VTR
Make the necessary connections as described in editing.

N





OPERATION N

Monitor the playback picture of the recorded tape on the viewfinder screen and decide where the insertion should be made.

1 Find the position for the end of the insert and press the RESET button. The counter returns to "0000".
2 Press the MEMORY button. The "MEMORY" mark appears on the display window.
3 Rewind the tape back a little further than the point where the insert should begin (e.g. "9970") by pressing the ◀◀ button during playback.
4 Release the ◀◀ button and press the ❚❚ button at the place the insert should begin. The unit is set in the playback pause mode.
5 Press the INSERT button. The unit is set in the insert pause mode. The ▶ lamp goes out and the INSERT and the ❚❚ lamp will light.
6 Play the inserting source of the connected equipment and:
For camera recording, press the START/STOP or the ❚❚ button.
For other recording, press the ❚❚ button.
The insert recording will start and the counter reading will increase.
The insert recording stops at the counter reading "0000" and the INSERT lamp goes out.

Instead of deciding the point where the insert should end, as described in step **1**, you may wish to continue the insertion and stop it at a suitable point while monitoring the inserted recording. In this case, start operating from step **3**. Proceed with the remaining steps and stop the insertion by pressing the ■ button.

When the pause mode lasts for approximately 7 minutes, the pause mode will be automatically released and the unit will be set in the stop mode.

Note
Insert recording cannot be made on the tape recorded in the LP mode.

1-13. NOTES ON MOISTURE CONDENSATION

MOISTURE INSIDE THE RECORDER SECTION

If the unit is brought directly from a cold to a warm location, moisture may condense on the drum assembly inside the unit. In this condition, the tape may adhere to the head drum. Take the cassette away.
To prevent possible damage under these circumstances, the recorder section is furnished with a moisture sensor. If moisture is present, the 💧 mark will blink when the power is turned on and the function buttons except for the EJECT button will not work. When a cassette has been inserted, the 💧 mark and the EJECT lamp will blink and the tape will be automatically unloaded.

If the 💧 mark blinks, eject the cassette and proceed as required.

When a battery pack is used as the power source
Turn off the unit and let the unit sit with the cassette compartment open until the moisture evaporates and the 💧 mark goes out when the power is turned on. In case the 💧 mark does not go out in a few hours, use an ac power adaptor or a dc pack as the power source.

When an ac power adaptor or a dc pack is used as the power source
Leave the recorder section turned on, so that the heater built in the recorder will activate to make the moisture evaporate.

When the moisture has completely evaporated, the 💧 mark will go out. Then operate the unit as usual.

Moisture on the tape
If a tape is brought directly from a cold to a warm location, moisture may condense on the surface of the tape. When the tape is inserted and a tape transport button (such as the ► button) is pressed, the EJECT lamp will blink and the function buttons except for the EJECT button will not work. In this case, the 💧 mark will not appear.

If the EJECT lamp blinks, eject the cassette and let the unit and the cassette sit until the moisture evaporates.

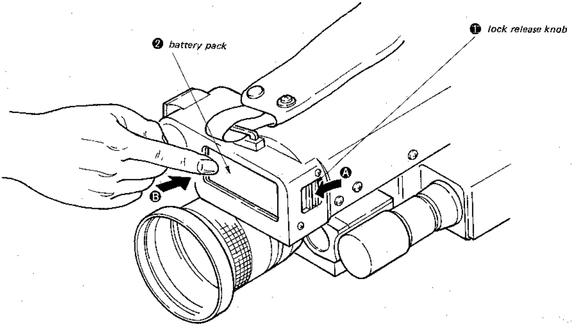
When to use
The unit can be used again if the EJECT lamp does not light when a cassette is inserted and a tape transport button is pressed.

Moisture condensation on the lens
Moisture may condense also on the lens when the recorder is brought in from a cold place to an extremely warm place, causing the lens to become dim. If this occurs, turn off the power and leave the recorder unused at least for an hour.

SECTION 2
DISASSEMBLY

2-1. REMOVAL OF THE BATTERY PACK

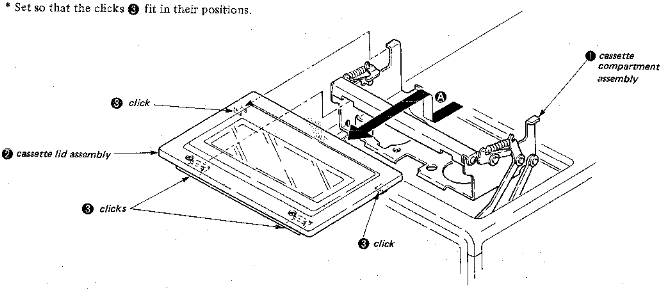
1) Press the lock release knob ❶ in the direction shown by the arrow Ⓐ and push the battery pack ❷ in the direction shown by the arrow Ⓑ until a clicking tone is audible.
2) Remove the battery pack ❷ pushed out by a spring force.


❷ battery pack
❶ lock release knob
Ⓐ
Ⓑ

2-2. REMOVAL OF THE CASSETTE LID ASSEMBLY

1) Turn on power and press the EJECT button to lift the cassette compartment assembly ❶ .
2) Slide the cassette lid assembly ❷ in the direction shown by the arrow Ⓐ and remove it.

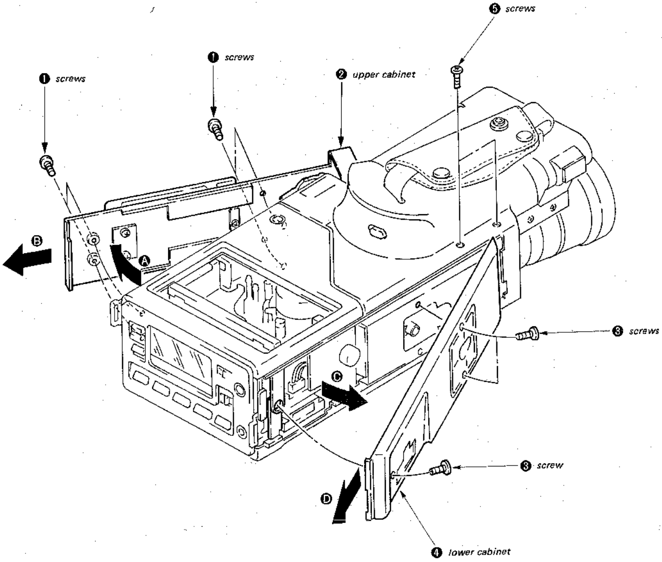
* Set so that the clicks ❸ fit in their positions.


❶ cassette compartment assembly
❸ click
❷ cassette lid assembly
❸ clicks
❸ click
Ⓐ

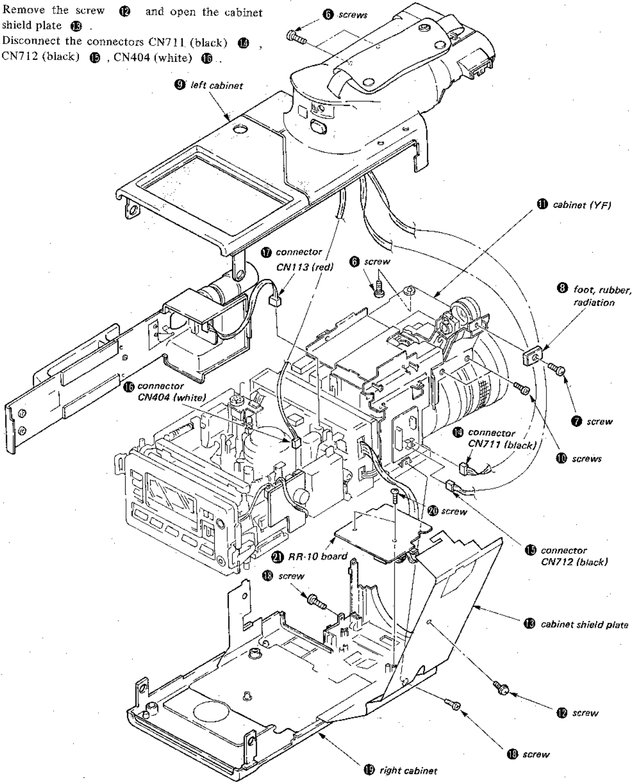
2-3. REMOVAL OF THE CABINET

1) Remove the four screws ❶ .
2) Open the upper cabinet ❷ in the direction shown by the arrow Ⓐ and remove it in the direction shown by the arrow Ⓑ . Be careful not to break the wiring cord which connects the upper cabinet ❷ of the main unit.
3) Remove the three screws ❸ .
4) Open the lower cabinet ❹ in the direction shown by the arrow Ⓒ and remove it in the direction shown by the arrow Ⓓ .
5) Remove the two screws ❺ .

To next page

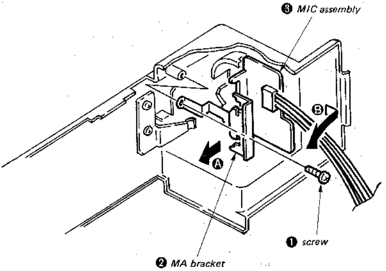

❺ screws
❶ screws
❶ screws
❷ upper cabinet
Ⓑ
Ⓐ
Ⓒ
❸ screws
❸ screw
Ⓓ
❹ lower cabinet

6) Remove the three screws ⑥.
7) Remove the screw ⑦ and remove the foot, rubber, radiation ⑧.
8) Remove the left cabinet ⑨.
9) Remove the two screws ⑩, and remove the cabinet (YF) ⑪.
10) Remove the screw ⑫ and open the cabinet shield plate ⑬.
11) Disconnect the connectors CN711 (black) ⑭, CN712 (black) ⑮, CN404 (white) ⑯.
12) Disconnect the connector CN113 (red) ⑰.
13) Remove the two screws ⑱ and remove the right cabinet ⑲.
14) Remove the two screws ⑳ and remove the RR-10 board ㉑.


⑥ screws
⑨ left cabinet
⑪ cabinet (YF)
⑰ connector CN113 (red)
⑥ screw
⑧ foot, rubber, radiation
⑯ connector CN404 (white)
⑦ screw
⑭ connector CN711 (black)
⑩ screws
⑳ screw
⑮ connector CN712 (black)
㉑ RR-10 board
⑱ screw
⑬ cabinet shield plate
⑫ screw
⑱ screw
⑲ right cabinet

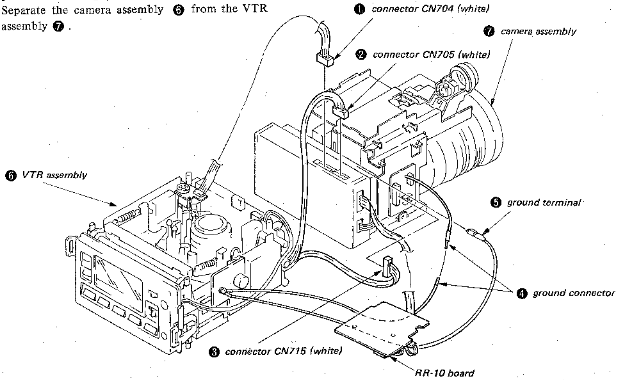
2-4. REMOVAL OF THE MIC ASSEMBLY

1) Remove the screw ❶.
2) Remove the MA bracket ❷ in the direction shown by the arrow Ⓐ.
3) Remove the MIC assembly ❸ in the direction shown by the arrow Ⓑ.


❸ MIC assembly
Ⓑ
Ⓐ
❶ screw
❷ MA bracket

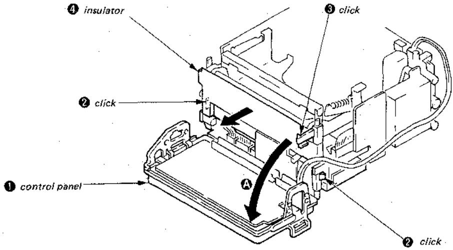
2-5. SEPARATION OF THE VTR ASSEMBLY AND CAMERA ASSEMBLY

1) Disconnect the connectors CN704 (white) ❶, CN705 (white) ❷ and CN715 (white) ❸.
2) Disconnect the ground connector ❹ and the ground terminal ❺.
3) Separate the camera assembly ❻ from the VTR assembly ❼.

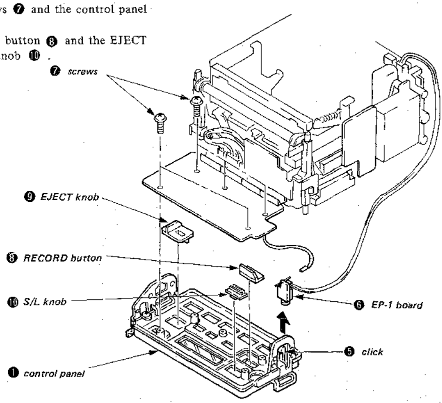

❶ connector CN704 (white)
❼ camera assembly
❷ connector CN705 (white)
❻ VTR assembly
❺ ground terminal
❹ ground connector
❸ connector CN715 (white)
RR-10 board

2-6. REMOVAL OF THE CONTROL PANEL

1) Disengage the strap mounting metal fittings on both right and left sides of the control panel ❶ from the two clicks ❷ .
2) Disengage the click ❸ and open the control panel ❶ with the printed circuit board in the direction shown by the arrow Ⓐ .
   (You will hear a teating sound, but this causes no problem.)
3) Remove the insulator ❹ .

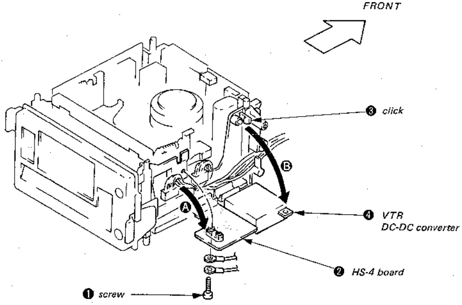

❹ insulator
❸ click
❷ click
Ⓐ
❶ control panel
❷ click

4) Disengage the click ❺ and remove the EP-1 board ❻ .
5) Remove the five screws ❼ and the control panel ❶ .
6) Remove the RECORD button ❽ and the EJECT knob ❾ and the S/L knob ❿ .


❼ screws
❾ EJECT knob
❽ RECORD button
❿ S/L knob
❻ EP-1 board
❺ click
❶ control panel

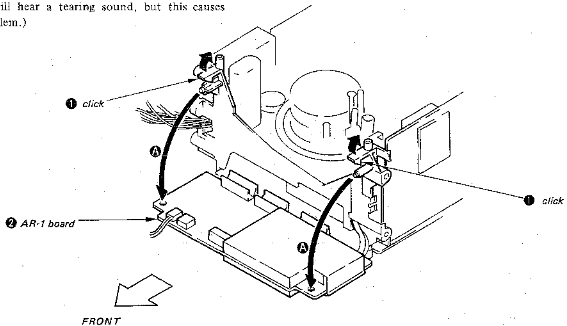
2-7. OPENING OF THE HS-4 BOARD AND THE DC-DC CONVERTER (VTR)

1) Remove the screw ❶ .
2) Open the HS-4 board ❷ in the direction shown by the arrow Ⓐ .
(You will hear a tearing sound, but this causes no problem.)
3) Disengage the click ❸ and open the DC/DC converter ❹ in the direction shown by the arrow Ⓑ .
(You will hear a tearing sound, but this causes no problem.)


FRONT
❸ click
Ⓑ
Ⓐ
❹ VTR
DC-DC converter
❷ HS-4 board
❶ screw

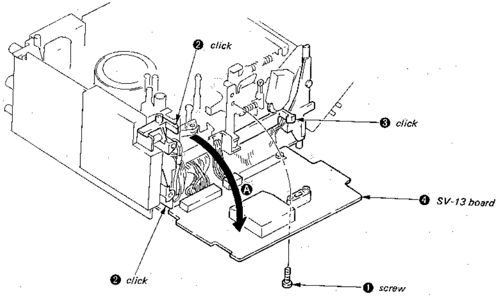
2-8. OPENING OF THE AR-1 BOARD

1) Disengage the two clicks ❶ from the AR-1 board ❷ .
2) Open the AR-1 board in the direction shown by the arrow Ⓐ .
(You will hear a tearing sound, but this causes no problem.)


❶ click
Ⓐ
❷ AR-1 board
Ⓐ
❶ click
FRONT

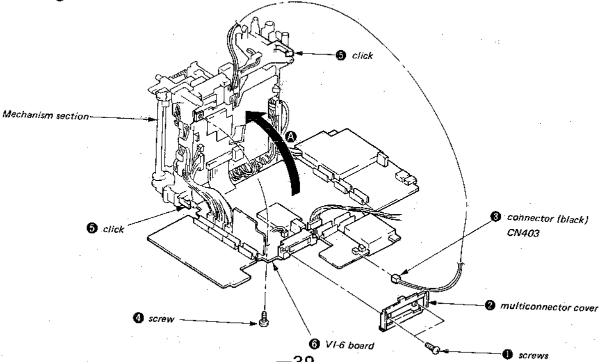
2-9. OPENING OF THE SV-13 BOARD

1) Remove the screw ❶ .
2) Disengage the two clicks ❷ .
3) Disengage the click ❸ and open the SV-13 board ❹ in the direction shown by the arrow Ⓐ .


❷ click
❸ click
Ⓐ
❹ SV-13 board
❷ click
❶ screw

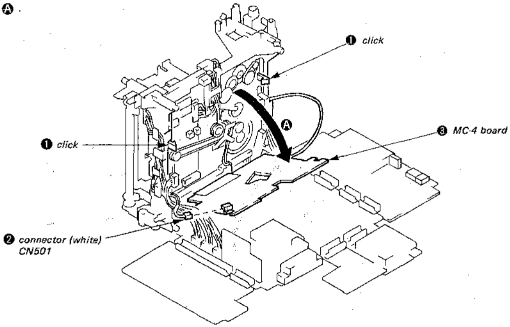
2-10. OPENING OF THE VI-6 BOARD

1) Remove the two screws ❶ and the multiconnector cover ❷ .
2) Disconnect the connector CN403 (black) ❸ .
3) Remove the screw ❹ .
4) Disengage the two clicks ❺ from the VI-6 board ❻ .
5) Open the VI-6 board ❻ in the direction shown by the arrow Ⓐ .


❺ click
Mechanism section
Ⓐ
❺ click
❸ connector (black) CN403
❷ multiconnector cover
❹ screw
❻ VI-6 board
❶ screws

2-11. REMOVAL OF THE MC-4 BOARD

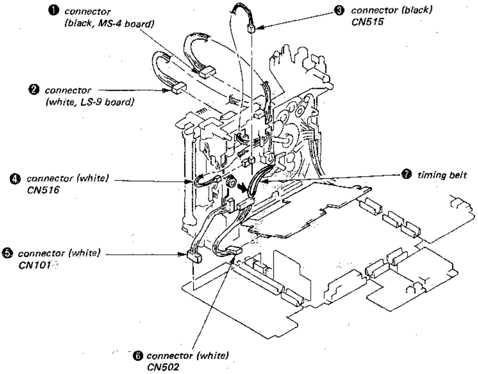
1) Disengage the two clicks ❶.
2) Disconnect the connector CN501 (white) ❷.
3) Remove the MC-4 board ❸ in the direction shown by the arrow Ⓐ.


❶ click
❶ click
Ⓐ
❸ MC-4 board
❷ connector (white) CN501

2-12. REMOVAL OF THE RS-2 BOARD

1) Disconnect the connectors ❶ to ❻.
2) Remove the timing belt ❼ from the pulley.

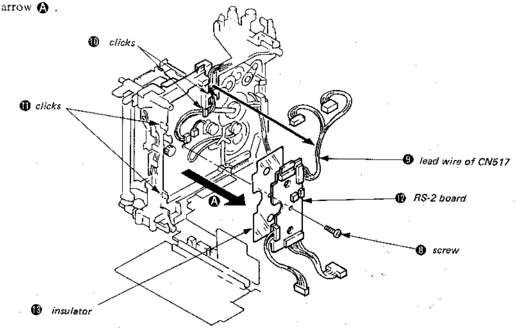
To next page


❶ connector (black, MS-4 board)
❸ connector (black) CN515
❷ connector (white, LS-9 board)
❹ connector (white) CN516
❼ timing belt
❺ connector (white) CN101
❻ connector (white) CN502

3) Remove the screw ❽.

4) Release the lead wire of CN517 ❾ from the two clicks ❿.

5) Disengage the two clicks ⓫ and remove the RS-2 board ⓬ and the insulator ⓭ in the direction shown by the arrow Ⓐ.

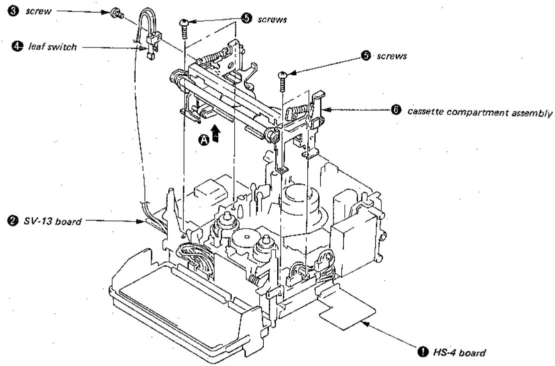

❿ clicks
⓫ clicks
❾ lead wire of CN517
⓬ RS-2 board
Ⓐ
❽ screw
⓭ insulator

2-13. REMOVAL OF THE CASSETTE COMPARTMENT ASSEMBLY

1) Perform the opening of the HS-4 board ❶ and the SV-13 board ❷ in advance.

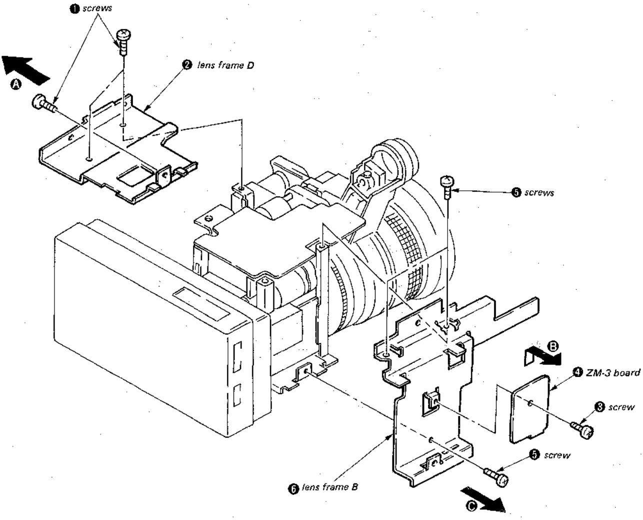
2) Remove the screw ❸ and the leaf switch ❹.

3) Remove four screws ❺ and the cassette compartment assembly ❻ in the direction shown by the arrow Ⓐ.


❸ screw
❹ leaf switch
❺ screws
❺ screws
❻ cassette compartment assembly
Ⓐ
❷ SV-13 board
❶ HS-4 board

2-14. REMOVAL OF THE LENS FRAME B AND LENS FRAME D

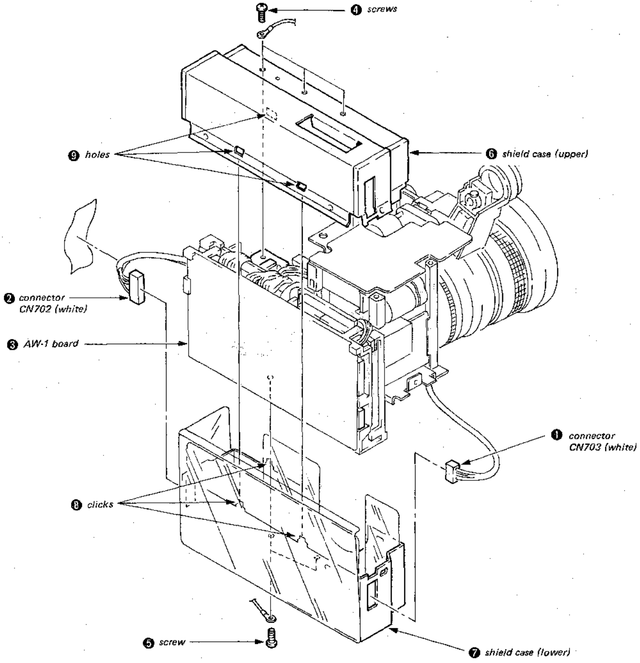
1) Remove the three screws ❶ and remove the lens frame D ❷ in the direction shown by the arrow Ⓐ.
2) Remove the screw ❸ and remove the ZM-3 board ❹ in the direction shown by the arrow Ⓑ.
3) Remove the three screws ❺ and remove the lens frame B ❻ in the direction shown by the arrow Ⓒ.


❶ screws
Ⓐ
❷ lens frame D
❺ screws
Ⓑ
❹ ZM-3 board
❸ screw
❺ screw
❻ lens frame B
Ⓒ

2-15. REMOVAL OF THE (UPPER AND LOWER) SHIELD CASES

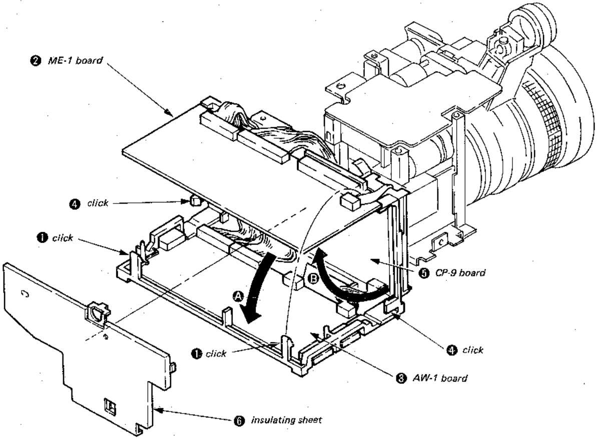
1) Disconnect the white connectors CN703 (white) ❶ and CN702 (white) ❷ from the AW-1 board ❸.
2) Remove the three screws ❹ and two screws ❺.
3) Separate the shield case into the upper part ❻ and the lower part ❼.

* When remounting the (upper and lower) shield case, put the clicks ❽ into the holes ❾.

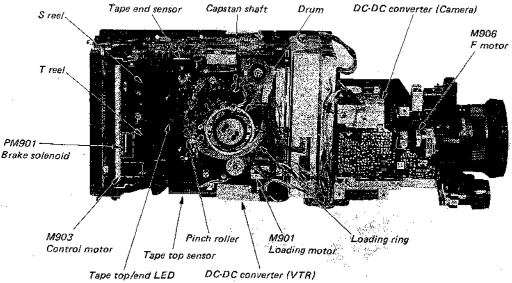

❹ screws
❾ holes
❻ shield case (upper)
❷ connector CN702 (white)
❸ AW-1 board
❶ connector CN703 (white)
❽ clicks
❺ screw
❼ shield case (lower)

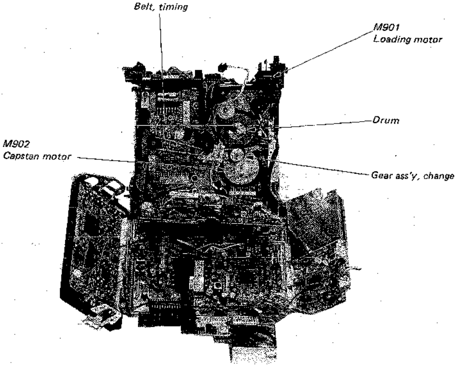
2-16. OPENING OF THE AW-1 AND THE ME-1 BOARDS

1) Disengage the two clicks ❶ from the ME-1 board ❷.
2) Open the AW-1 board ❸ in the direction shown by the arrow Ⓐ.
3) Disengage the two clicks ❹ from the ME-1 board ❷.
4) Lift the ME-1 board ❷ in the direction shown by the arrow Ⓑ.
5) Remove the insulating sheet ❻ from the CP-9 board ❺.


❷ ME-1 board
❹ click
❶ click
❺ CP-9 board
Ⓑ
Ⓐ
❹ click
❶ click
❸ AW-1 board
❻ insulating sheet

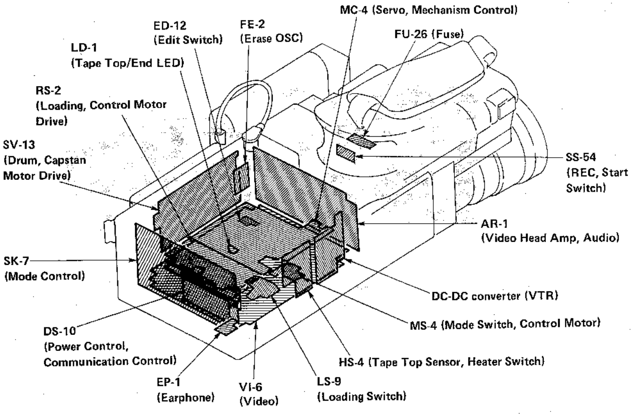
2-17. INTERNAL VIEW

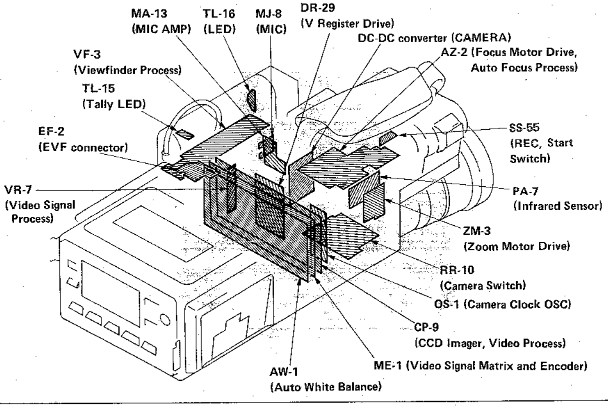

S reel
Tape end sensor
Capstan shaft
Drum
DC-DC converter (Camera)
M906
F motor
T reel
PM901
Brake solenoid
M903
Control motor
Pinch roller
Tape top sensor
M901
Loading motor
Loading ring
Tape top/end LED
DC-DC converter (VTR)


Belt, timing
M901
Loading motor
Drum
M902
Capstan motor
Gear ass'y, change

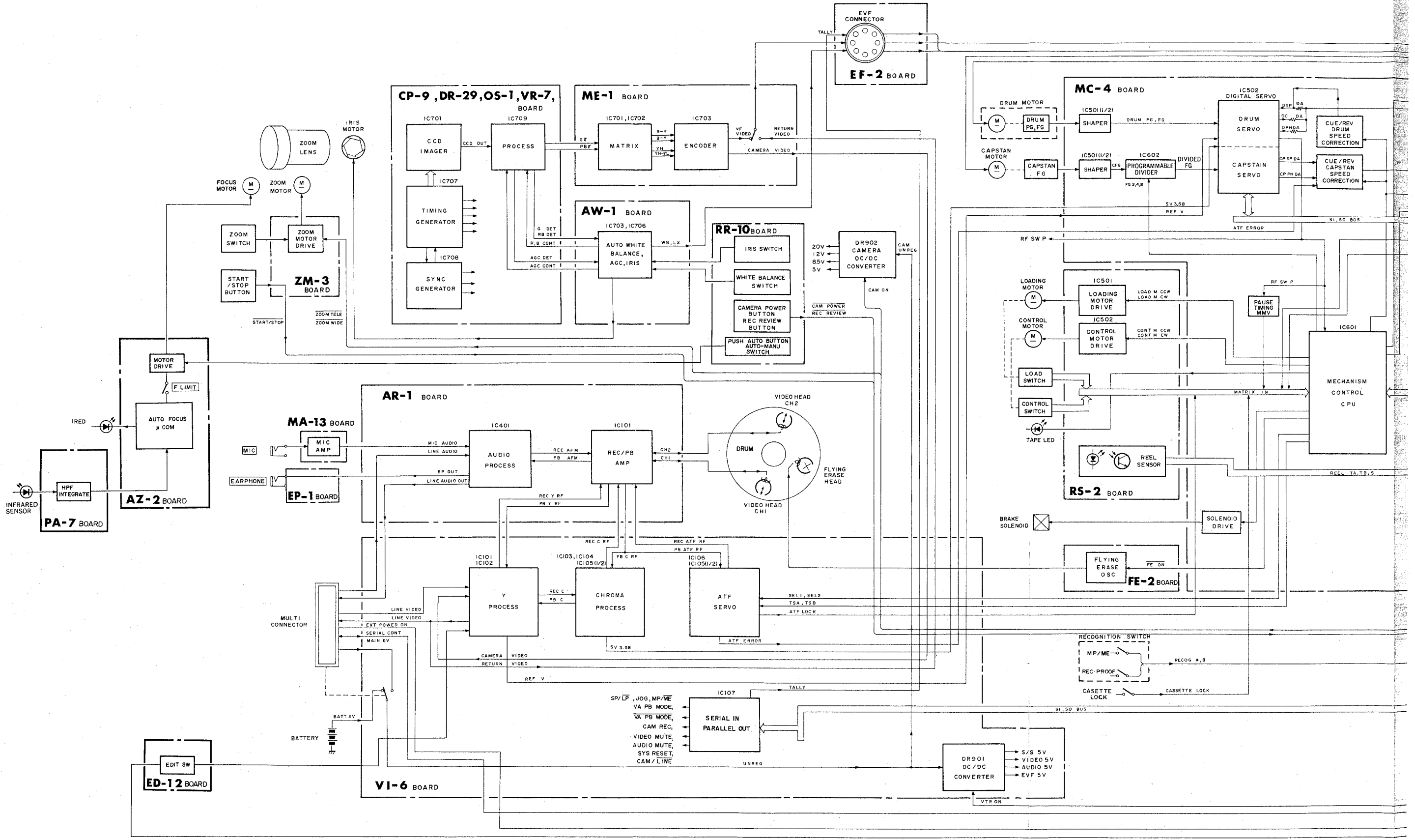
SECTION 3
DIAGRAMS

3-1. CIRCUIT BOARDS LOCATION

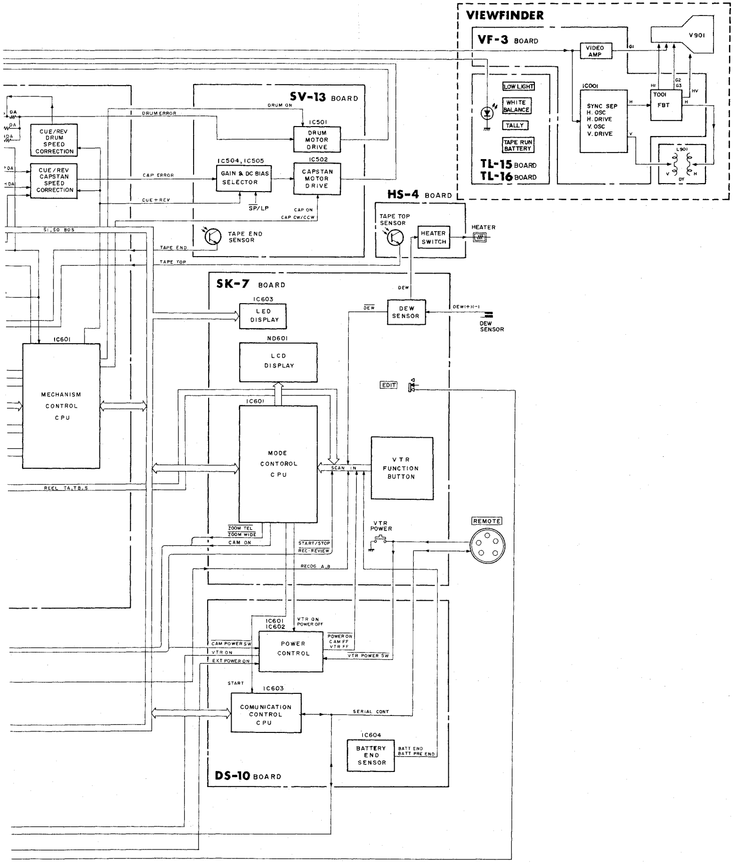

MC-4 (Servo, Mechanism Control)
ED-12 (Edit Switch)
FE-2 (Erase OSC)
FU-26 (Fuse)
LD-1 (Tape Top/End LED)
RS-2 (Loading, Control Motor Drive)
SV-13 (Drum, Capstan Motor Drive)
SS-54 (REC, Start Switch)
AR-1 (Video Head Amp, Audio)
SK-7 (Mode Control)
DC-DC converter (VTR)
MS-4 (Mode Switch, Control Motor)
DS-10 (Power Control, Communication Control)
HS-4 (Tape Top Sensor, Heater Switch)
EP-1 (Earphone)
VI-6 (Video)
LS-9 (Loading Switch)


MA-13 (MIC AMP)
TL-16 (LED)
MJ-8 (MIC)
DR-29 (V Register Drive)
DC-DC converter (CAMERA)
AZ-2 (Focus Motor Drive, Auto Focus Process)
VF-3 (Viewfinder Process)
TL-15 (Tally LED)
EF-2 (EVF connector)
SS-55 (REC, Start Switch)
VR-7 (Video Signal Process)
PA-7 (Infrared Sensor)
ZM-3 (Zoom Motor Drive)
RR-10 (Camera Switch)
OS-1 (Camera Clock OSC)
CP-9 (CCD Imager, Video Process)
ME-1 (Video Signal Matrix and Encoder)
AW-1 (Auto White Balance)

3-2. OVERALL BLOCK DIAGRAM

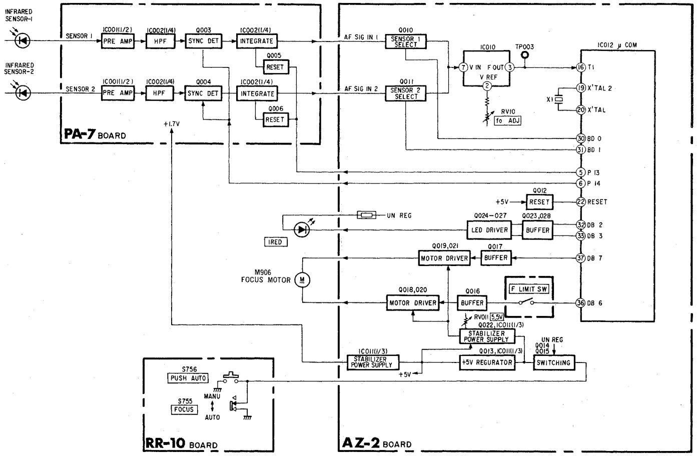


EVF CONNECTOR
TALLY
EF-2 BOARD
CP-9, DR-29, OS-1, VR-7, BOARD
IC701
CCD IMAGER
CCD OUT
IC709
PROCESS
IC707
TIMING GENERATOR
IC708
SYNC GENERATOR
ME-1 BOARD
IC701, IC702
MATRIX
R-Y
B-Y
YH
YH-YL
IC703
ENCODER
VF VIDEO
RETURN VIDEO
CAMERA VIDEO
AW-1 BOARD
IC703, IC706
AUTO WHITE BALANCE, AGC, IRIS
G DET
RB DET
R, B CONT
AGC DET
AGC CONT
WB, LX
RR-10 BOARD
IRIS SWITCH
WHITE BALANCE SWITCH
CAMERA POWER BUTTON
REC REVIEW BUTTON
PUSH AUTO BUTTON AUTO-MANU SWITCH
CAM POWER
REC REVIEW
DR902 CAMERA DC/DC CONVERTER
20V
12V
8.5V
5V
CAM UNREG
CAM ON
ZOOM LENS
IRIS MOTOR
FOCUS MOTOR
ZOOM MOTOR
ZOOM SWITCH
ZOOM MOTOR DRIVE
START/STOP BUTTON
ZM-3 BOARD
START/STOP
ZOOM TELE
ZOOM WIDE
MOTOR DRIVE
F LIMIT
AUTO FOCUS μ COM
IRED
AZ-2 BOARD
HPF INTEGRATE
INFRARED SENSOR
PA-7 BOARD
MA-13 BOARD
MIC
MIC AMP
EARPHONE
EP-1 BOARD
AR-1 BOARD
IC401
AUDIO PROCESS
MIC AUDIO
LINE AUDIO
EP OUT
LINE AUDIO OUT
IC101
REC/PB AMP
REC AFM
PB AFM
CH2
CH1
REC Y RF
PB Y RF
VIDEO HEAD CH2
DRUM
FLYING ERASE HEAD
VIDEO HEAD CH1
REC C RF
REC ATF RF
PB ATF RF
PB C RF
IC101
IC102
Y PROCESS
IC103, IC104
IC105(1/2)
CHROMA PROCESS
REC C
PB C
IC106
IC105(1/2)
ATF SERVO
SEL1, SEL2
TSA, TSB
ATF LOCK
ATF ERROR
SV 3.58
MULTI CONNECTOR
LINE VIDEO
LINE VIDEO
EXT POWER ON
SERIAL CONT
MAIN 6V
CAMERA VIDEO
RETURN VIDEO
REF V
TALLY
BATT 6V
BATTERY
EDIT SW
ED-12 BOARD
VI-6 BOARD
IC107
SERIAL IN PARALLEL OUT
SP/LP, JOG, MP/ME
VA PB MODE,
VA PB MODE,
CAM REC,
VIDEO MUTE,
AUDIO MUTE,
SYS RESET,
CAM/LINE
UNREG
MC-4 BOARD
DRUM MOTOR
DRUM PG, FG
IC501(1/2)
SHAPER
DRUM PG, FG
CAPSTAN MOTOR
CAPSTAN FG
IC501(1/2)
SHAPER
CFG
IC602
PROGRAMMABLE DIVIDER
FG 2,4,8
DIVIDED FG
IC502
DIGITAL SERVO
DRUM SERVO
CAPSTAN SERVO
DSP
DC
DPHDA
DA
CP SP DA
CP PH DA
CUE/REV DRUM SPEED CORRECTION
CUE/REV CAPSTAN SPEED CORRECTION
SV 3.58
REF V
ATF ERROR
SI, SO BUS
RF SW P
LOADING MOTOR
IC501
LOADING MOTOR DRIVE
LOAD M CCW
LOAD M CW
CONTROL MOTOR
IC502
CONTROL MOTOR DRIVE
CONT M CCW
CONT M CW
LOAD SWITCH
CONTROL SWITCH
TAPE LED
RF SW P
PAUSE TIMING MMV
IC601
MECHANISM CONTROL CPU
MATRIX IN
REEL SENSOR
RS-2 BOARD
REEL TA, TB, S
BRAKE SOLENOID
SOLENOID DRIVE
FLYING ERASE OSC
FE ON
FE-2 BOARD
RECOGNITION SWITCH
MP/ME
REC-PROOF
RECOG A, B
CASETTE LOCK
CASSETTE LOCK
SI, SO BUS
DR901 DC/DC CONVERTER
S/S 5V
VIDEO 5V
AUDIO 5V
EVF 5V
VTR ON



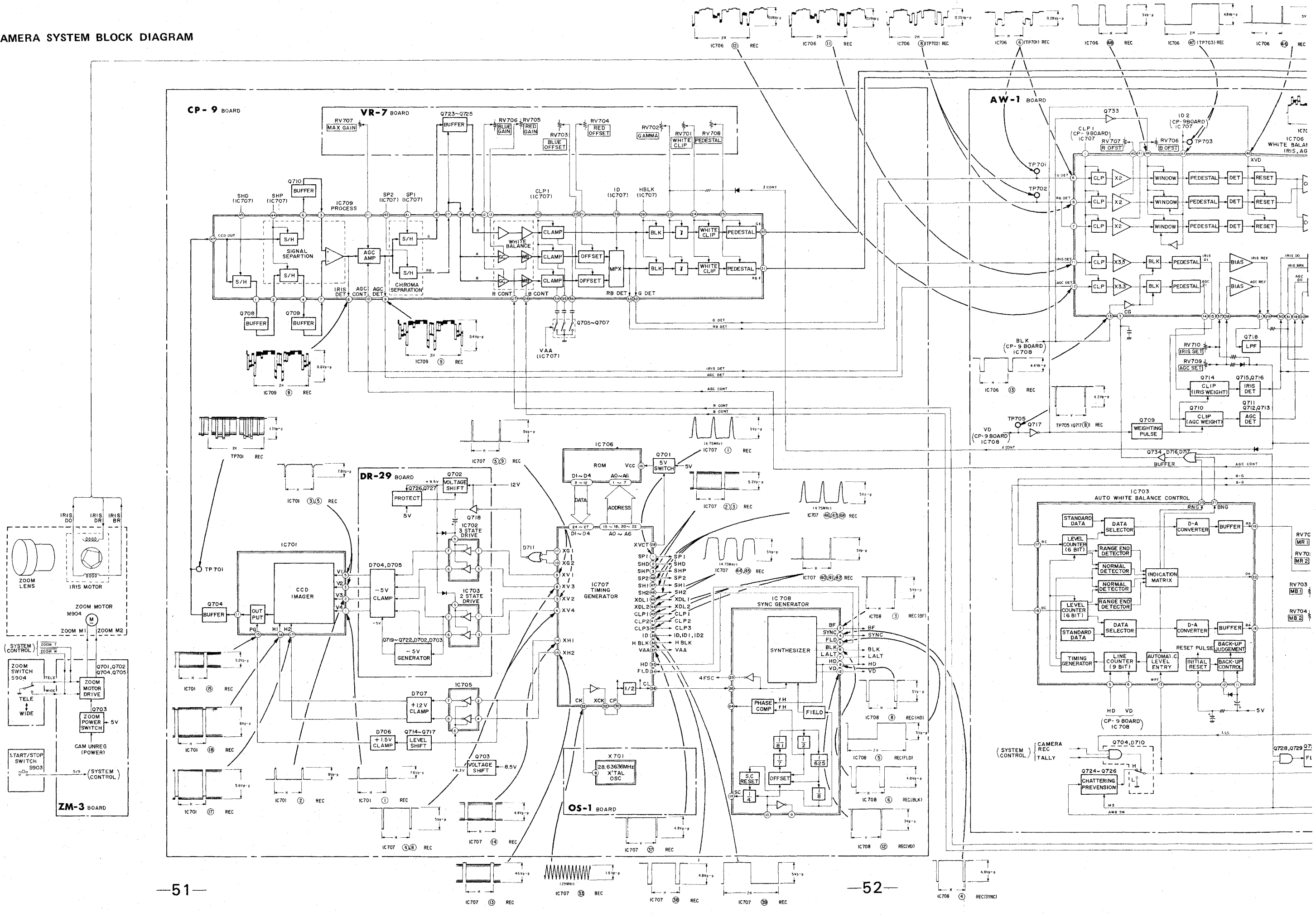
VIEWFINDER
VF-3 BOARD
VIDEO AMP
V901
IC001
SYNC SEP
H. OSC
H. DRIVE
V. OSC
V. DRIVE
T001
FBT
L901
DY
LOW LIGHT
WHITE BALANCE
TALLY
TAPE RUN BATTERY
TL-15 BOARD
TL-16 BOARD
SV-13 BOARD
DRUM ON
DRUM ERROR
IC501
DRUM MOTOR DRIVE
IC504, IC505
GAIN & DC BIAS SELECTOR
IC502
CAPSTAN MOTOR DRIVE
CAP ERROR
CUE+REV
SP/LP
CAP ON
CAP CW/CCW
CUE/REV DRUM SPEED CORRECTION
CUE/REV CAPSTAN SPEED CORRECTION
TAPE END SENSOR
TAPE END
TAPE TOP
HS-4 BOARD
TAPE TOP SENSOR
HEATER SWITCH
HEATER
SK-7 BOARD
IC603
LED DISPLAY
ND601
LCD DISPLAY
DEW
DEW SENSOR
DEW SENSOR
IC601
MECHANISM CONTROL CPU
IC601
MODE CONTOROL CPU
SCAN IN
VTR FUNCTION BUTTON
EDIT
REMOTE
VTR POWER
ZOOM TEL
ZOOM WIDE
CAM ON
START/STOP
REC-REVIEW
RECOG A,B
REEL TA,TB,S
DS-10 BOARD
IC601
IC602
POWER CONTROL
VTR ON POWER OFF
POWER ON CAM FF VTR FF
CAM POWER SW
VTR ON
EXT POWER ON
VTR POWER SW
START
IC603
COMUNICATION CONTROL CPU
SERIAL CONT
IC604
BATTERY END SENSOR
BATT END
BATT PRE END

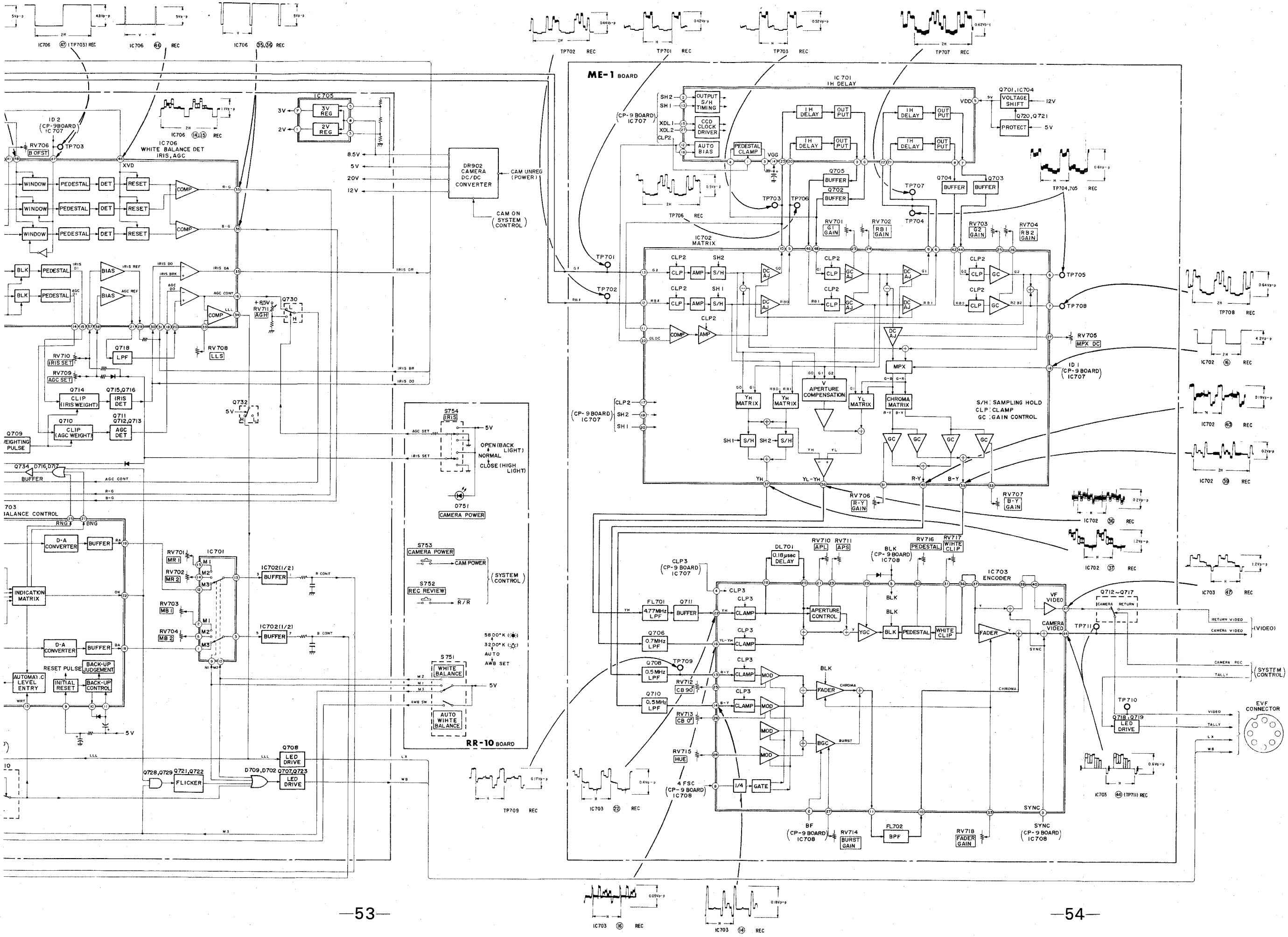
3-3. AUTO FOCUS BLOCK DIAGRAM



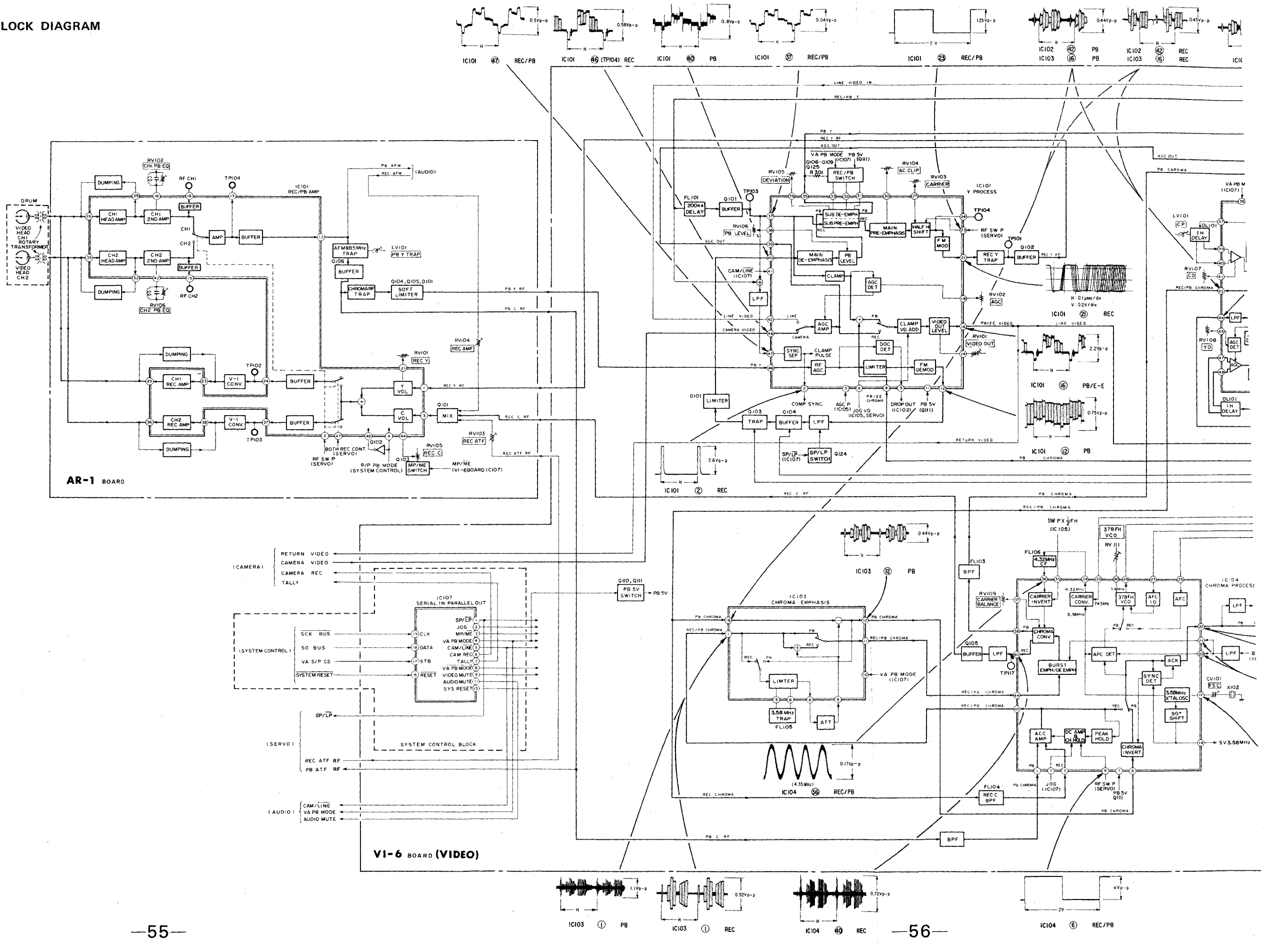
INFRARED SENSOR-1
INFRARED SENSOR-2
SENSOR 1
SENSOR 2
IC001(1/2)
PRE AMP
IC002(1/4)
HPF
Q003
Q004
SYNC DET
IC002(1/4)
INTEGRATE
Q005
Q006
RESET
PA-7 BOARD
+1.7V
AF SIG IN 1
AF SIG IN 2
Q010
SENSOR 1 SELECT
Q011
SENSOR 2 SELECT
IC010
V IN
F OUT
V REF
TP003
RV10
fo ADJ
X1
IC012 μ COM
T1
X'TAL 2
X'TAL
BD 0
BD 1
P 13
P 14
Q012
+5V
RESET
UN REG
IRED
Q024–027
LED DRIVER
Q023,028
BUFFER
DB 2
DB 3
Q019,021
MOTOR DRIVER
Q017
BUFFER
DB 7
M906
FOCUS MOTOR
Q018,020
MOTOR DRIVER
Q016
BUFFER
F LIMIT SW
DB 6
RV011 5.5V
Q022, IC011(1/3)
STABILIZER POWER SUPPLY
IC011(1/3)
STABILIZER POWER SUPPLY
Q013, IC011(1/3)
+5V REGURATOR
UN REG
Q014
Q015
SWITCHING
+5V
S756
PUSH AUTO
S755
FOCUS
MANU
AUTO
RR-10 BOARD
AZ-2 BOARD

3-4. CAMERA SYSTEM BLOCK DIAGRAM

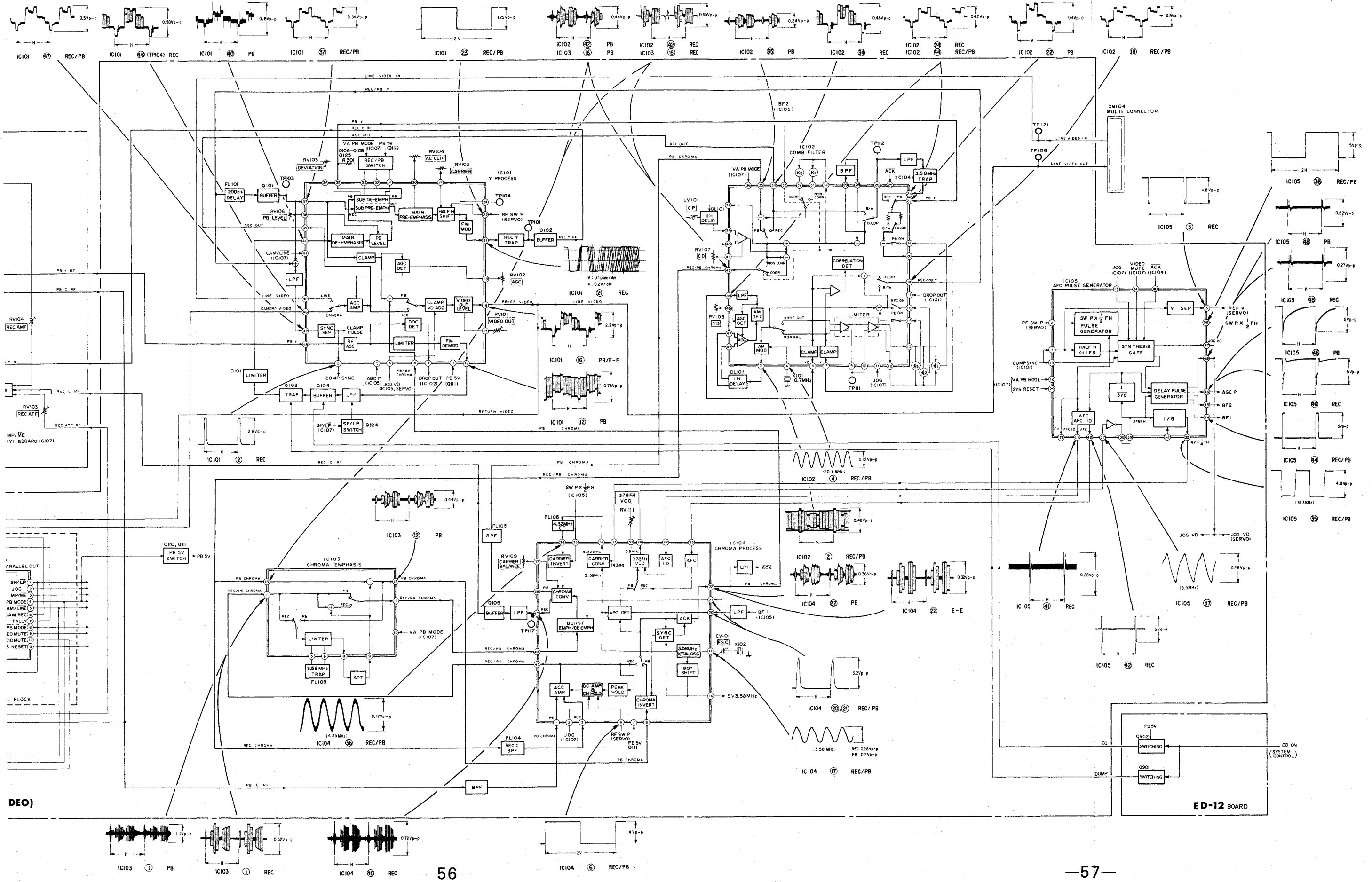

CP-9 BOARD
VR-7 BOARD
RV707 MAX GAIN
Q723~Q725 BUFFER
RV706 BLUE GAIN
RV705 RED GAIN
RV703 BLUE OFFSET
RV704 RED OFFSET
RV702 GAMMA
RV701 WHITE CLIP
RV708 PEDESTAL
IC709 PROCESS
SIGNAL SEPARTION
S/H
AGC AMP
CHROMA SEPARATION
WHITE BALANCE
CLAMP
OFFSET
MPX
BLK
WHITE CLIP
PEDESTAL
IRIS DET
AGC CONT
AGC DET
R CONT
B CONT
RB DET
G DET
Q705~Q707
VAA (IC707)
Q708 BUFFER
Q709 BUFFER
Q710 BUFFER
TP701
Q704 BUFFER
IC701
CCD IMAGER
OUT PUT
DR-29 BOARD
PROTECT
Q702 VOLTAGE SHIFT
Q718
IC702 3 STATE DRIVE
IC703 2 STATE DRIVE
D704,D705
-5V CLAMP
Q719~Q722,D702,D703
-5V GENERATOR
D707 +12V CLAMP
IC705
D706 +15V CLAMP
Q714~Q717 LEVEL SHIFT
Q703 VOLTAGE SHIFT
IC706 ROM
Q701 5V SWITCH
IC707 TIMING GENERATOR
DATA
ADDRESS
X701 28.63636MHz X'TAL OSC
OS-1 BOARD
IC708 SYNC GENERATOR
SYNTHESIZER
PHASE COMP
FIELD
OFFSET
S.C RESET
AW-1 BOARD
CLP
X2
WINDOW
PEDESTAL
DET
RESET
X3.3
BIAS
IRIS REF
AGC REF
RV710 IRIS SET
RV709 AGC SET
Q718 LPF
Q714 CLIP (IRIS WEIGHT)
Q715,Q716 IRIS DET
Q710 CLIP (AGC WEIGHT)
Q711 Q712,Q713 AGC DET
Q709 WEIGHTING PULSE
Q734,D716,D717 BUFFER
IC703 AUTO WHITE BALANCE CONTROL
STANDARD DATA
DATA SELECTOR
LEVEL COUNTER (6 BIT)
RANGE END DETECTOR
NORMAL DETECTOR
INDICATION MATRIX
D-A CONVERTER
BUFFER
TIMING GENERATOR
LINE COUNTER (9 BIT)
AUTOMATIC LEVEL ENTRY
INITIAL RESET
BACK-UP JUDGEMENT
BACK-UP CONTROL
Q704,D710
Q724~Q726 CHATTERING PREVENSION
SYSTEM CONTROL
CAMERA REC
TALLY
ZOOM LENS
IRIS MOTOR
ZOOM MOTOR M904
ZOOM SWITCH S904
TELE
WIDE
ZOOM MOTOR DRIVE
Q701,Q702 Q704,Q705
Q703 ZOOM POWER SWITCH
CAM UNREG (POWER)
START/STOP SWITCH S903
ZM-3 BOARD


IC706 (47) (TP703) REC
IC706 (49) REC
IC706 (35),(36) REC
TP702 REC
TP701 REC
TP703 REC
TP707 REC
ME-1 BOARD
IC701
1H DELAY
OUTPUT S/H TIMING
CCD CLOCK DRIVER
PEDESTAL CLAMP
AUTO BIAS
1H DELAY
OUT PUT
BUFFER
Q701,IC704
VOLTAGE SHIFT
Q720,Q721
PROTECT
12V
5V
IC705
3V REG
2V REG
DR902 CAMERA DC/DC CONVERTER
CAM UNREG (POWER)
CAM ON (SYSTEM CONTROL)
8.5V
5V
20V
12V
ID2 (CP-9BOARD) IC707
RV706 B OFST
TP703
IC706 WHITE BALANCE DET IRIS, AGC
WINDOW
PEDESTAL
DET
RESET
COMP
BLK
BIAS
IRIS REF
AGC REF
IRIS DA
AGC CONT
IRIS BR
IRIS DO
Q730
RV711 AGH
RV708 LLS
Q718 LPF
RV710 IRIS SET
RV709 AGC SET
Q714 CLIP (IRIS WEIGHT)
Q715,Q716 IRIS DET
Q710 CLIP (AGC WEIGHT)
Q711 Q712,Q713 AGC DET
Q709 WEIGHTING PULSE
Q734 D716,D717 BUFFER
Q732
RR-10 BOARD
S754 IRIS
OPEN (BACK LIGHT)
NORMAL
CLOSE (HIGH LIGHT)
D751 CAMERA POWER
S753 CAMERA POWER
CAM POWER
S752 REC REVIEW
R/R
(SYSTEM CONTROL)
S751 WHITE BALANCE
AUTO WHITE BALANCE
5800°K
3200°K
AUTO
AWB SET
703 BALANCE CONTROL
D-A CONVERTER
BUFFER
INDICATION MATRIX
RESET PULSE
BACK-UP JUDGEMENT
AUTOMATIC LEVEL ENTRY
INITIAL RESET
BACK-UP CONTROL
RV701 MR1
RV702 MR2
RV703 MB1
RV704 MB2
IC701
IC702(1/2) BUFFER
R CONT
B CONT
Q708 LED DRIVE
Q728,Q729
Q721,Q722 FLICKER
D709,D702 Q707,Q723 LED DRIVE
LLL
LX
WB
M3
TP709 REC
(CP-9 BOARD) IC707
TP701
TP702
TP703
TP706
TP707
TP704
Q705
Q702
Q704
Q703
RV701 G1 GAIN
RV702 RB1 GAIN
RV703 G2 GAIN
RV704 RB2 GAIN
IC702 MATRIX
CLP2
CLP
AMP
S/H
DC AJ
GC AJ
GC
COMP
RV705 MPX DC
MPX
ID1 (CP-9 BOARD) IC707
APERTURE COMPENSATION
YH MATRIX
YL MATRIX
CHROMA MATRIX
S/H: SAMPLING HOLD
CLP: CLAMP
GC: GAIN CONTROL
TP704,705 REC
TP705
TP708
TP708 REC
IC702 (16) REC
IC702 (43) REC
IC702 (39) REC
IC702 (36) REC
IC702 (37) REC
RV706 R-Y GAIN
RV707 B-Y GAIN
YH
YL-YH
R-Y
B-Y
DL701 0.18μsec DELAY
RV710 APL
RV711 APS
BLK (CP-9 BOARD) IC708
RV716 PEDESTAL
RV717 WHITE CLIP
IC703 ENCODER
CLP3 (CP-9 BOARD) IC707
FL701 4.77MHz LPF
Q711 BUFFER
Q706 0.7MHz LPF
Q708 0.5MHz LPF
Q710 0.5MHz LPF
CLAMP
APERTURE CONTROL
YGC
BLK
PEDESTAL
WHITE CLIP
FADER
MOD
BGC
CHROMA
BURST
1/4
GATE
TP709
RV712 CB 90°
RV713 CB 0°
RV715 HUE
4 FSC (CP-9 BOARD) IC708
BF (CP-9 BOARD) IC708
RV714 BURST GAIN
FL702 BPF
RV718 FADER GAIN
SYNC
SYNC (CP-9 BOARD) IC708
VF VIDEO
CAMERA VIDEO
TP711
Q712~Q717
CAMERA RETURN
RETURN VIDEO
CAMERA VIDEO
(VIDEO)
CAMERA REC
TALLY
(SYSTEM CONTROL)
TP710
Q718,Q719 LED DRIVE
EVF CONNECTOR
IC703 (47) REC
IC703 (44) (TP711) REC
IC703 (22) REC
IC703 (16) REC
IC703 (14) REC

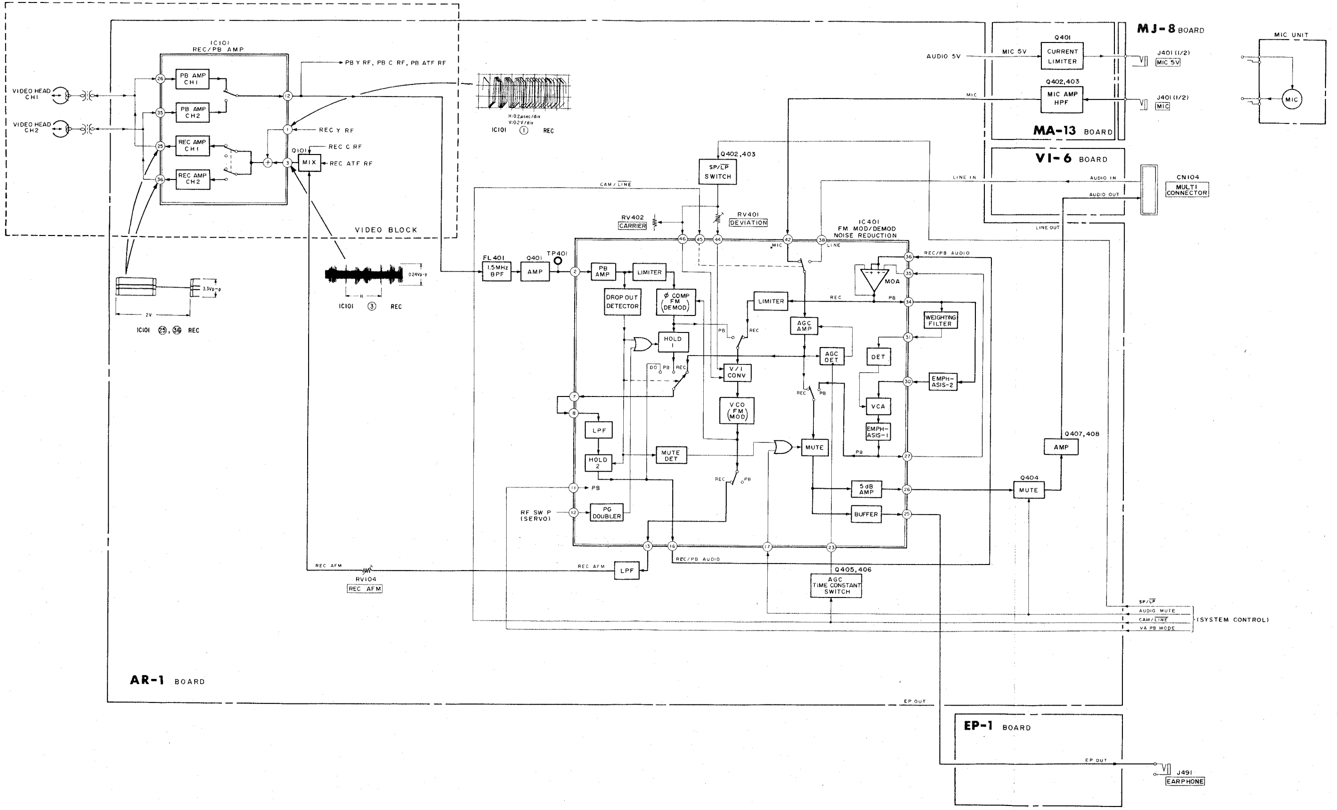
3-5. VIDEO SYSTEM BLOCK DIAGRAM

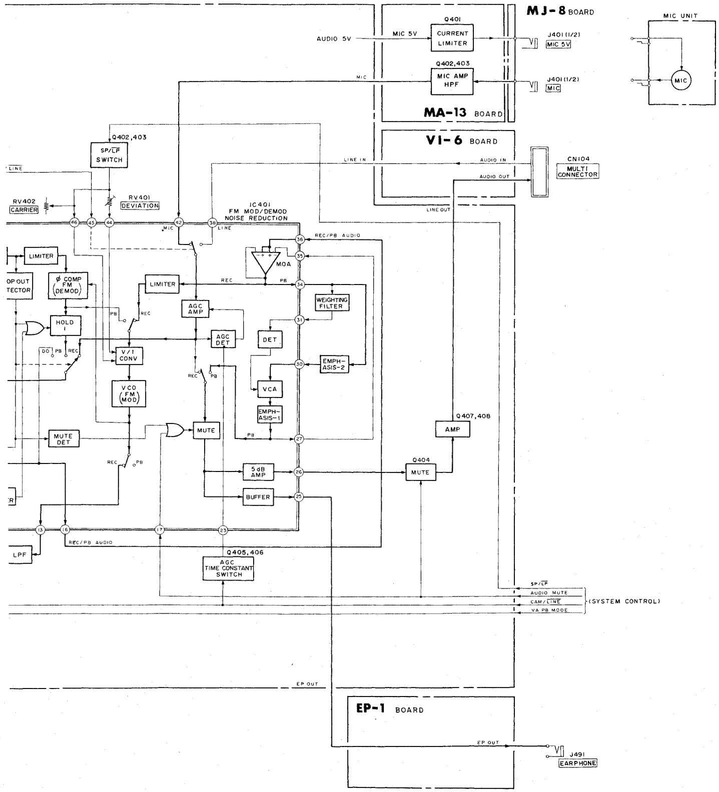


IC101 ㊼ REC/PB
IC101 ㊻ (TP104) REC
IC101 ㊵ PB
IC101 ㊲ REC/PB
IC101 ㉓ REC/PB
IC102 ㊷ PB
IC103 ⑯ PB
IC102 ㊷ REC
IC103 ⑯ REC
DRUM
VIDEO HEAD CH1
ROTARY TRANSFORMER
VIDEO HEAD CH2
DUMPING
CH1 HEAD AMP
CH1 2ND AMP
CH2 HEAD AMP
CH2 2ND AMP
RV102 CH1 PB EQ
RV106 CH2 PB EQ
RF CH1
RF CH2
TP104
BUFFER
AMP
IC101 REC/PB AMP
PB AFM
REC AFM
(AUDIO)
AFM 885MHz TRAP
LV101 PB Y TRAP
Q106
CHROMA RF TRAP
Q104, Q105, D101
SOFT LIMITER
PB Y RF
PB C RF
RV104 REC AMP
RV101 REC Y
CH1 REC AMP
CH2 REC AMP
V-1 CONV
TP102
TP103
Y VOL
C VOL
Q101 MIX
REC Y RF
REC C RF
RV103 REC ATF
RV105 REC C
REC ATF RF
Q102
Q103
MP/ME SWITCH
MP/ME (VI-6BOARD IC107)
BOTH REC CONT (SERVO)
RF SW P (SERVO)
R/P PB MODE (SYSTEM CONTROL)
AR-1 BOARD
LINE VIDEO IN
REC/PB Y
AGC OUT
PB CHROMA
FL101 200ns DELAY
Q101 BUFFER
TP103
RV105 DEVIATION
RV106 PB LEVEL
VA PB MODE (IC107)
PB 5V (Q111)
Q106–Q109 Q125 R301
REC/PB SWITCH
RV104 AC CLIP
RV103 CARRIER
IC101 Y PROCESS
SUB DE-EMPH
SUB PRE-EMPH
MAIN PRE-EMPHASIS
HALF H SHIFT
FM MOD
TP104
RF SW P (SERVO)
TP101
REC Y TRAP
Q102 BUFFER
MAIN DE-EMPHASIS
PB LEVEL
CLAMP
AGC DET
CAM/LINE (IC107)
LPF
RV102 AGC
H: 0.1μsec/div
V: 0.2V/div
IC101 ㉑ REC
LINE VIDEO
CAMERA VIDEO
AGC AMP
CLAMP VD ADD
VIDEO OUT LEVEL
RV101 VIDEO OUT
PB/EE VIDEO
SYNC SEP
CLAMP PULSE
DOC DET
RF AGC
LIMITER
FM DEMOD
IC101 ⑯ PB/E-E
D101 LIMITER
COMP SYNC
AGC P (IC105)
JOG VD (IC105, SERVO)
DROP OUT (IC102)
PB 5V (Q111)
Q103 TRAP
Q104 BUFFER
LPF
SP/LP (IC107)
SP/LP SWITCH Q124
RETURN VIDEO
IC101 ⑫ PB
IC101 ② REC
LV101
DL101 1H DELAY
RV107 CD
RV108 YD
AGC DET
VA PB MODE (IC107)
RETURN VIDEO
CAMERA VIDEO
CAMERA REC
TALLY
(CAMERA)
IC107 SERIAL IN PARALLEL OUT
SCK BUS
SO BUS
VA S/P CS
SYSTEM RESET
(SYSTEM CONTROL)
CLK
DATA
STB
RESET
SP/LP
JOG
MP/ME
VA PB MODE
CAM/LINE
CAM REC
TALLY
VA PB MODE
VIDEO MUTE
AUDIO MUTE
SYS RESET
SYSTEM CONTROL BLOCK
SP/LP
(SERVO)
REC ATF RF
PB ATF RF
CAM/LINE
VA PB MODE
AUDIO MUTE
(AUDIO)
Q110, Q111 PB 5V SWITCH
PB 5V
IC103 ⑫ PB
IC103 CHROMA EMPHASIS
PB CHROMA
REC/PB CHROMA
LIMITER
3.58MHz TRAP
FL105
ATT
VA PB MODE (IC107)
(4.35MHz)
IC104 ㊱ REC/PB
REC CHROMA
FL103 BPF
SW P X 1/2 FH (IC105)
378FH VCO
RV111
FL106 4.32MHz CF
RV109 CARRIER BALANCE
CARRIER INVERT
CARRIER CONV
378FH VCO
AFC 1/2
AFC
CHROMA CONV
Q105 BUFFER
LPF
TP117
BURST EMPH/DE-EMPH
APC DET
ACK
SYNC DET
3.58MHz X'TAL OSC
90° SHIFT
CV101 FSC
X102
IC104 CHROMA PROCESS
ACC AMP
DC AMP & CH HOLD
PEAK HOLD
CHROMA INVERT
SV 3.58MHz
FL104 REC C BPF
JOG (IC107)
RF SW P (SERVO)
PB 5V Q111
BPF
PB C RF
VI-6 BOARD (VIDEO)
IC103 ① PB
IC103 ① REC
IC104 ㊵ REC
IC104 ⑥ REC/PB

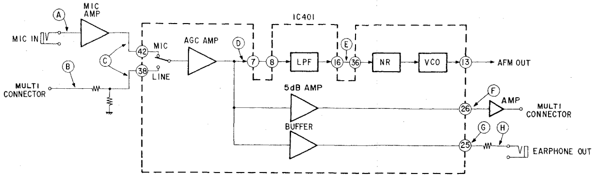

IC101 ㊼ REC/PB
IC101 ㊻ (TP104) REC
IC101 ㊵ PB
IC101 ㊲ REC/PB
IC101 ㉓ REC/PB
IC102 ㊷ PB
IC103 ⑯ PB
IC102 ㊷ REC
IC103 ⑯ REC
IC102 ㉟ PB
IC102 ㉞ REC
IC102 ㉔ REC
IC102 ㊹ REC/PB
IC102 ㉒ PB
IC102 ⑱ REC/PB
LINE VIDEO IN
REC/PB Y
BF2 (IC105)
IC102 COMB FILTER
CN104 MULTI CONNECTOR
TP121
TP108
IC101 Y PROCESS
FL101 200ns DELAY
Q101 BUFFER
RV105 DEVIATION
REC/PB SWITCH
RV104 AC CLIP
RV103 CARRIER
SUB DE-EMPH
SUB PRE-EMPH
MAIN PRE-EMPHASIS
HALF H SHIFT
FM MOD
REC Y TRAP
Q102 BUFFER
TP104
TP101
RF SW P (SERVO)
RV106 PB LEVEL
MAIN DE-EMPHASIS
PB LEVEL
CLAMP
AGC DET
AGC AMP
CLAMP VD ADD
VIDEO OUT LEVEL
RV102 AGC
RV101 VIDEO OUT
SYNC SEP
CLAMP PULSE
RF AGC
DOC DET
LIMITER
FM DEMOD
LPF
CAM/LINE (IC107)
D101 LIMITER
Q103 TRAP
Q104 BUFFER
SP/LP SWITCH
Q124
COMP SYNC
AGC P (IC105)
JOG VD (IC105, SERVO)
DROP OUT (IC102)
PB 5V (Q111)
IC101 ㉑ REC
H: 0.1μsec/div
V: 0.2V/div
IC101 ⑯ PB/E-E
IC101 ⑫ PB
IC101 ② REC
RV104 REC AMP
RV103 REC ATF
LV101 CP
DL101 1H DELAY
RV107 CD
RV108 YD
CORRELATION DET
AGC DET
AM DET
AM MOD
LIMITER
CLAMP
BPF
LPF
3.58MHz TRAP
TP112
TP111
X101 (10.7MHz)
DL101 1H DELAY
IC102 ④ REC/PB
IC102 ② REC/PB
IC104 ㉒ PB
IC104 ㉒ E-E
IC105 AFC PULSE GENERATOR
SW P X 1/2 FH PULSE GENERATOR
HALF H KILLER
SYNTHESIS GATE
V SEP
REF V (SERVO)
SW P X 1/2 FH
1/378
DELAY PULSE GENERATOR
AFC AFC 10
1/8
AGC P
BF2
BF1
JOG VD (SERVO)
IC105 ㊱ REC/PB
IC105 ③ REC
IC105 ㊽ PB
IC105 ㊽ REC
IC105 ㊻ PB
IC105 ㊻ REC
IC105 ㊹ REC/PB
IC105 ㉟ REC/PB
IC105 ㊶ REC
IC105 ㊲ REC/PB
IC105 ㊷ REC
Q110, Q111 PB 5V SWITCH
IC103 CHROMA EMPHASIS
LIMTER
3.58MHz TRAP
FL105
ATT
VA PB MODE (IC107)
IC103 ⑫ PB
IC104 ㊱ REC/PB
IC104 CHROMA PROCESS
SW P X 1/2 FH (IC105)
FL106 4.32MHz CF
378FH VCO
RV111
CARRIER INVERT
CARRIER CONV
378FH VCO
AFC I.D
AFC
RV109 CARRIER BALANCE
CHROMA CONV
BURST EMPH/DE-EMPH
APC DET
ACK
SYNC DET
3.58MHz X'TAL OSC
90° SHIFT
ACC AMP
DC AMP & CH HOLD
PEAK HOLD
CHROMA INVERT
CV101 FSC
X102
SV3.58MHz
FL103 BPF
Q105 BUFFER
TP117
FL104 REC C BPF
BPF
IC104 ⑳,㉑ REC/PB
IC104 ⑰ REC/PB
PARALLEL OUT
SP/LP
JOG
MP/ME
PB MODE
CAM/LINE
CAM REC
TALLY
PB MODE
VIDEO MUTE
AUDIO MUTE
SYS RESET
L BLOCK
DEO)
Q902 SWITCHING
Q901 SWITCHING
EQ
DUMP
ED ON (SYSTEM CONTROL)
ED-12 BOARD
IC103 ① PB
IC103 ① REC
IC104 ㊵ REC
IC104 ⑥ REC/PB

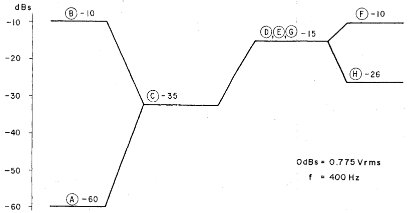
3-6. VIDEO/AUDIO BLOCK DIAGRAM

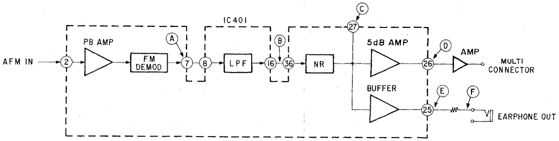

IC101
REC/PB AMP
PB AMP CH1
PB AMP CH2
REC AMP CH1
REC AMP CH2
VIDEO HEAD CH1
VIDEO HEAD CH2
PB Y RF, PB C RF, PB ATF RF
REC Y RF
REC C RF
REC ATF RF
Q101
MIX
VIDEO BLOCK
H:0.2μsec/div
V:0.2V/div
IC101 ① REC
IC101 ③ REC
IC101 ㉕, ㊱ REC
3.3Vp-p
0.24Vp-p
2V
H
FL401
1.5MHz BPF
Q401
AMP
TP401
CAM/LINE
Q402,403
SP/LP SWITCH
RV402
CARRIER
RV401
DEVIATION
IC401
FM MOD/DEMOD
NOISE REDUCTION
PB AMP
LIMITER
DROP OUT DETECTOR
φ COMP FM DEMOD
HOLD 1
DO PB REC
V/I CONV
VCO (FM MOD)
LPF
HOLD 2
MUTE DET
PB
PG DOUBLER
RF SW P (SERVO)
LIMITER
AGC AMP
AGC DET
DET
VCA
EMPH-ASIS-1
EMPH-ASIS-2
WEIGHTING FILTER
MOA
MUTE
5dB AMP
BUFFER
REC
PB
MIC
LINE
REC/PB AUDIO
REC AFM
RV104
REC AFM
LPF
Q405,406
AGC TIME CONSTANT SWITCH
Q404
MUTE
Q407,408
AMP
AUDIO 5V
MIC 5V
Q401
CURRENT LIMITER
Q402,403
MIC AMP HPF
J401 (1/2)
MIC 5V
J401 (1/2)
MIC
MJ-8 BOARD
MA-13 BOARD
MIC UNIT
MIC
VI-6 BOARD
LINE IN
AUDIO IN
AUDIO OUT
LINE OUT
CN104
MULTI CONNECTOR
SP/LP
AUDIO MUTE
CAM/LINE
VA PB MODE
(SYSTEM CONTROL)
AR-1 BOARD
EP OUT
EP-1 BOARD
EP OUT
J491
EARPHONE

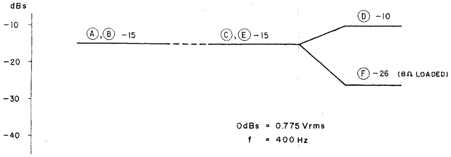

MJ-8 BOARD
MA-13 BOARD
VI-6 BOARD
EP-1 BOARD
AUDIO 5V
MIC 5V
Q401
CURRENT LIMITER
Q402,403
MIC AMP HPF
J401 (1/2)
MIC 5V
MIC
MIC UNIT
LINE IN
AUDIO IN
AUDIO OUT
LINE OUT
CN104
MULTI CONNECTOR
SP/LP SWITCH
LINE
RV402
CARRIER
RV401
DEVIATION
IC401
FM MOD/DEMOD
NOISE REDUCTION
REC/PB AUDIO
MOA
LIMITER
φ COMP FM (DEMOD)
OP OUT TECTOR
HOLD I
DO
PB
REC
V/I CONV
VCO (FM MOD)
AGC AMP
AGC DET
DET
WEIGHTING FILTER
EMPH-ASIS-2
VCA
EMPH-ASIS-1
MUTE
MUTE DET
5dB AMP
BUFFER
Q404
MUTE
Q407,408
AMP
LPF
Q405,406
AGC TIME CONSTANT SWITCH
SP/LP
AUDIO MUTE
CAM/LINE
VA PB MODE
(SYSTEM CONTROL)
EP OUT
J491
EARPHONE
46
45
44
42
38
36
35
34
31
30
27
26
25
23
17
16
13

3-7. AUDIO LEVEL DIAGRAM

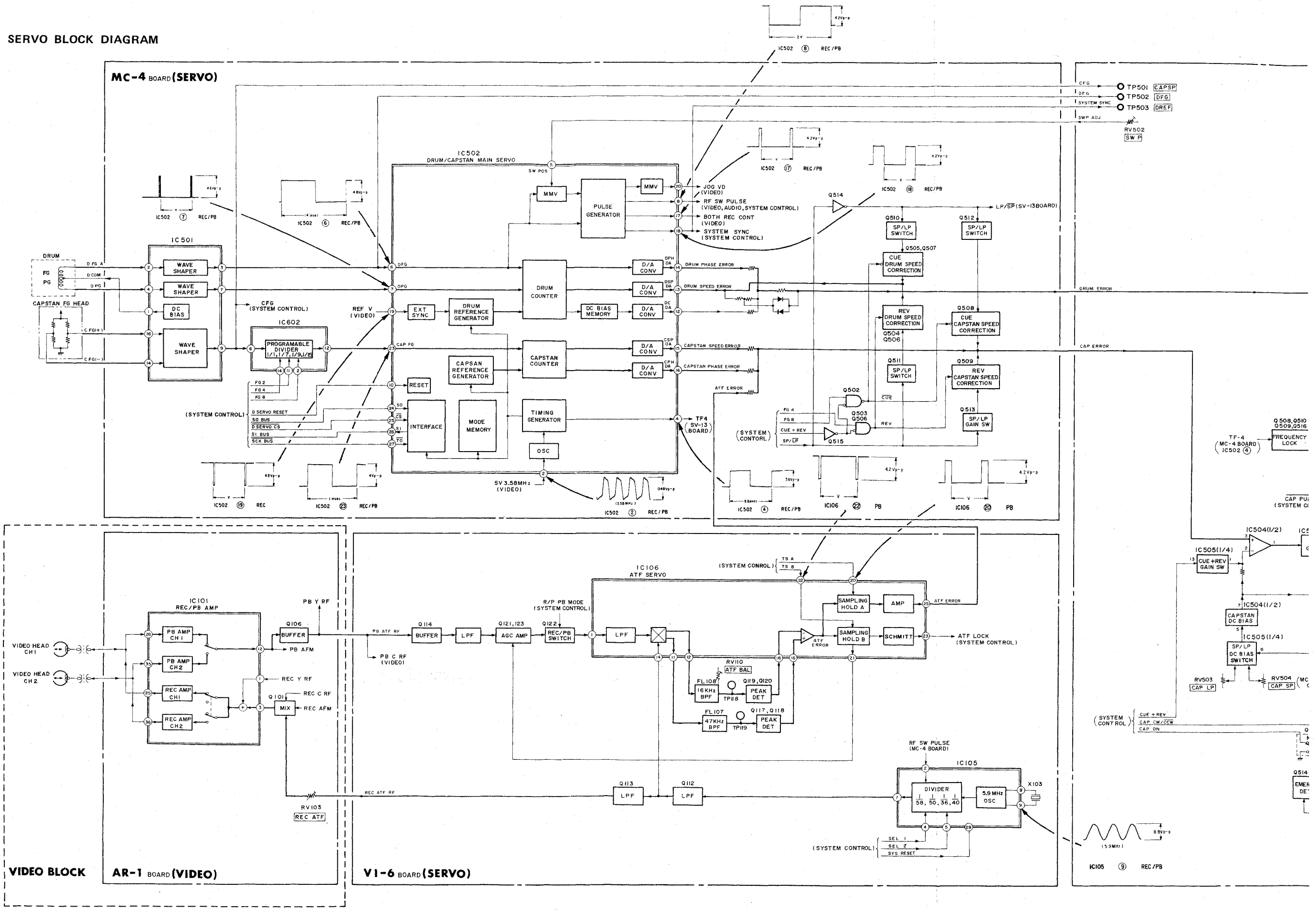

MIC IN
MULTI CONNECTOR
MIC AMP
A
B
C
MIC
LINE
AGC AMP
D
IC401
7
8
LPF
16
E
36
NR
VCO
13
AFM OUT
5dB AMP
BUFFER
26
F
AMP
MULTI CONNECTOR
G
H
25
EARPHONE OUT
42
38

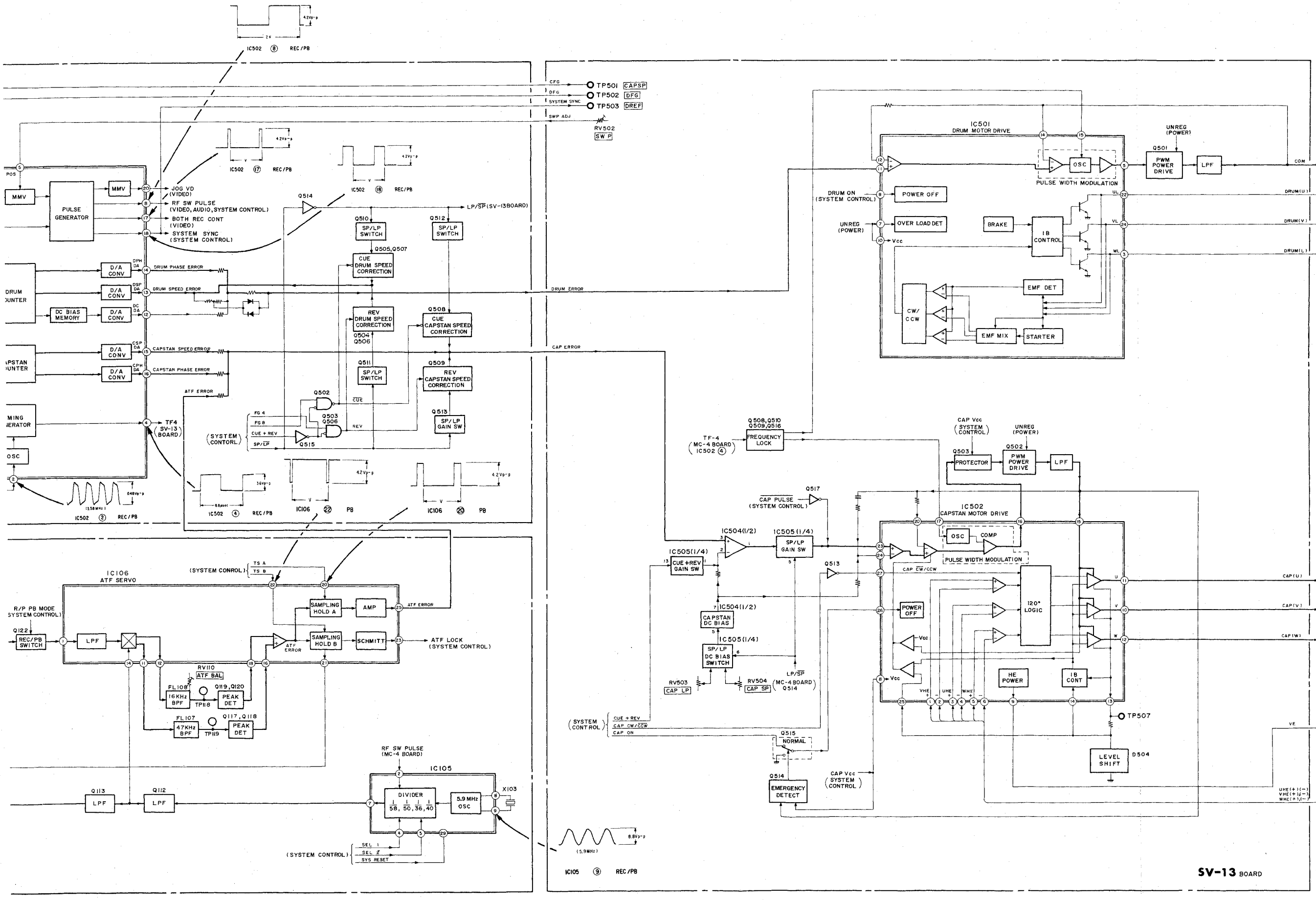



AFM IN
2
PB AMP
FM DEMOD
A
7
8
IC401
LPF
16
B
36
NR
C
27
5dB AMP
26
D
AMP
MULTI CONNECTOR
BUFFER
25
E
F
EARPHONE OUT



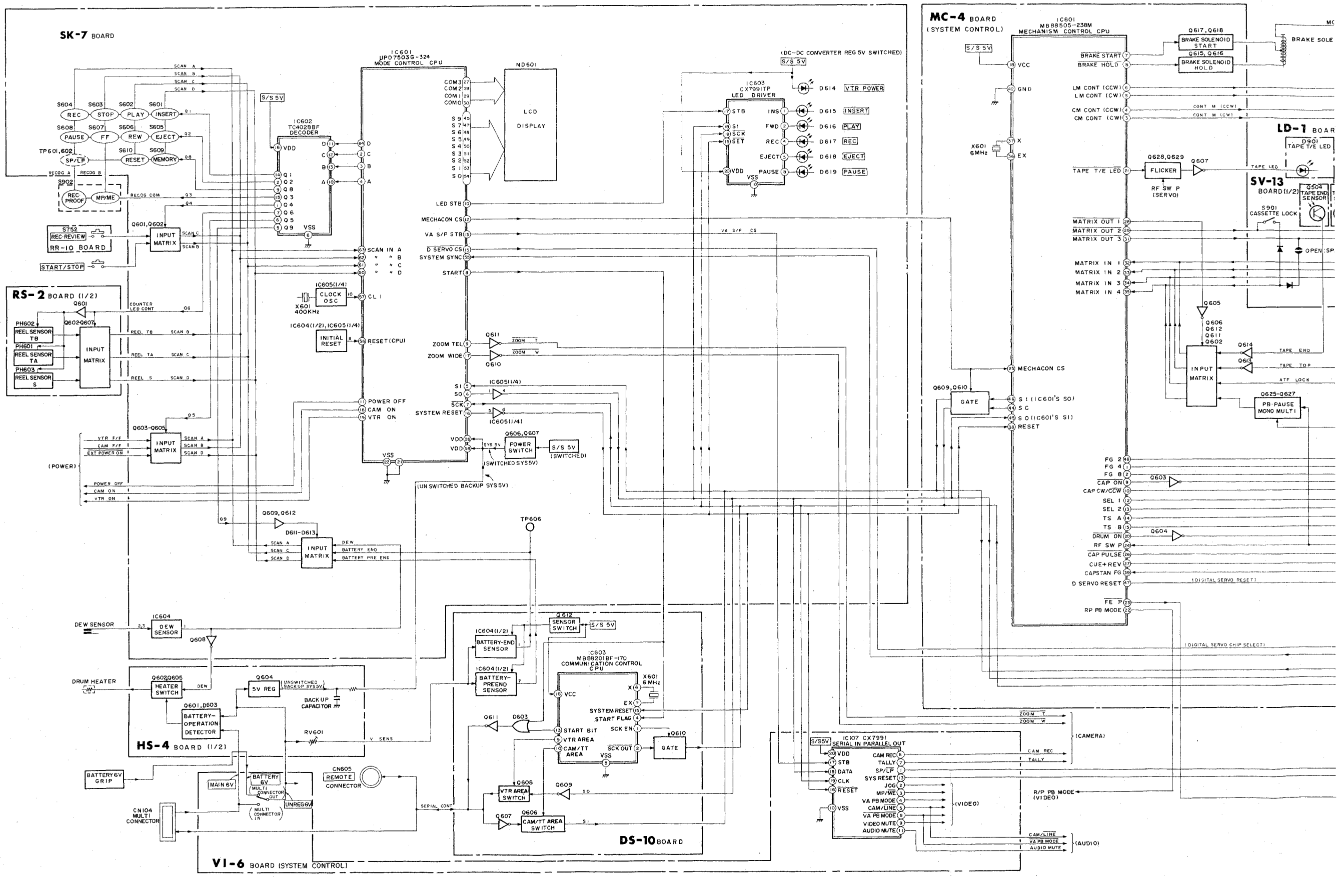
3-8. SERVO BLOCK DIAGRAM

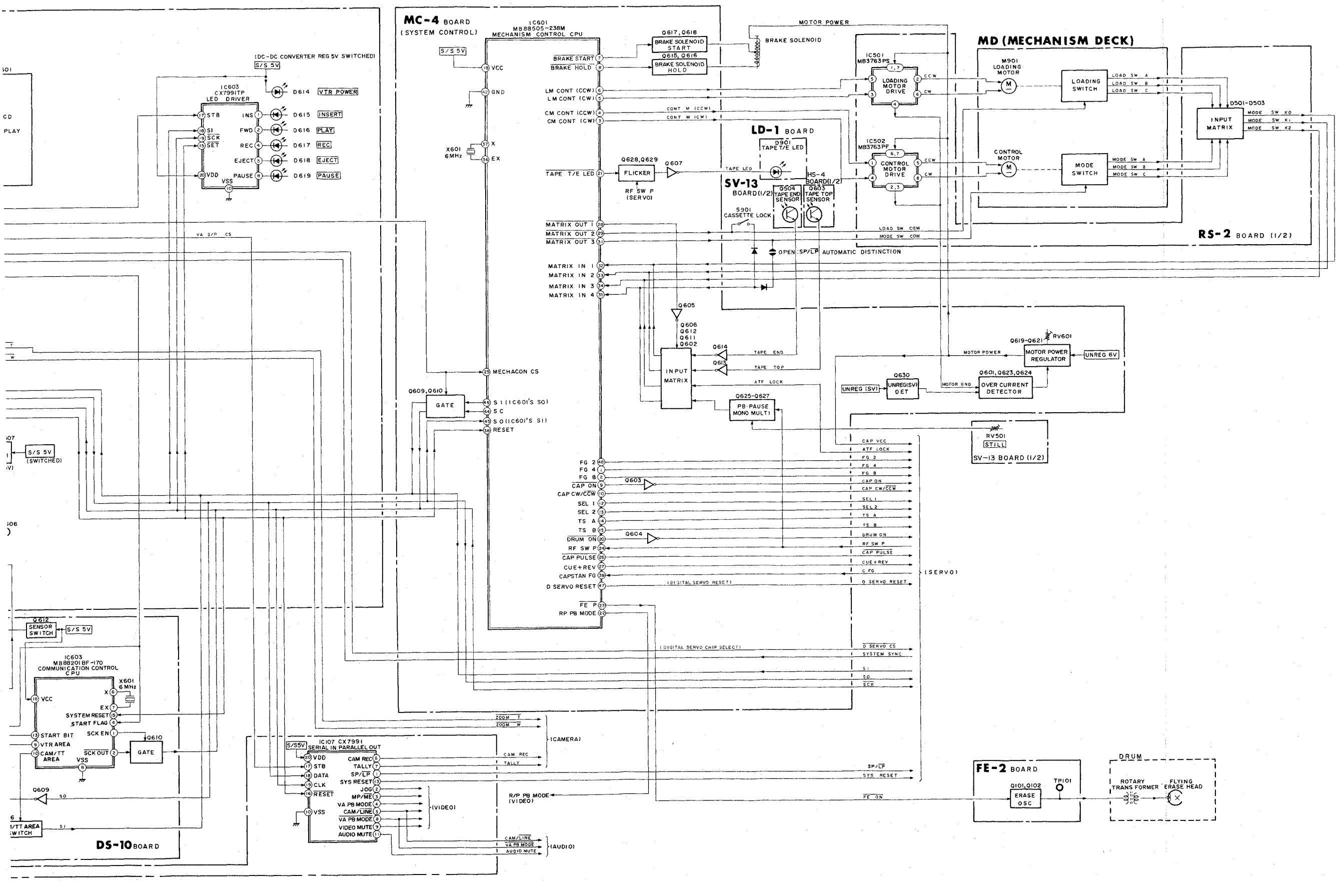

MC-4 BOARD (SERVO)
IC502 ⑧ REC/PB
4.2Vp-p
IC502 DRUM/CAPSTAN MAIN SERVO
SW POS
MMV
PULSE GENERATOR
JOG VD (VIDEO)
RF SW PULSE (VIDEO, AUDIO, SYSTEM CONTROL)
BOTH REC CONT (VIDEO)
SYSTEM SYNC (SYSTEM CONTROL)
IC502 ⑰ REC/PB
IC502 ⑱ REC/PB
Q514
LP/SP (SV-138 BOARD)
TP501 CAPSP
TP502 DFG
TP503 DREF
CFG
DFG
SYSTEM SYNC
SWP ADJ
RV502 SW P
IC502 ⑦ REC/PB
IC502 ⑥ REC/PB
4.8Vp-p
IC501
DRUM
FG
PG
D FG A
D COM
D PG
CAPSTAN FG HEAD
C FG(+)
C FG(−)
WAVE SHAPER
DC BIAS
CFG (SYSTEM CONTROL)
IC602
PROGRAMABLE DIVIDER 1/1, 1/7, 1/9, 1/15
FG 2
FG 4
FG 8
(SYSTEM CONTROL)
D SERVO RESET
SO BUS
D SERVO CS
SI BUS
SCK BUS
REF V (VIDEO)
EXT SYNC
DRUM REFERENCE GENERATOR
DRUM COUNTER
DC BIAS MEMORY
D/A CONV
DPH DA
DSP DA
DC DA
CSP DA
CPH DA
DRUM PHASE ERROR
DRUM SPEED ERROR
CAPSTAN SPEED ERROR
CAPSTAN PHASE ERROR
ATF ERROR
CAP FG
CAPSAN REFERENCE GENERATOR
CAPSTAN COUNTER
RESET
INTERFACE
MODE MEMORY
TIMING GENERATOR
OSC
TF4 (SV-13 BOARD)
SV 3.58MHz (VIDEO)
IC502 ⑲ REC
IC502 ㉓ REC/PB
IC502 ② REC/PB
IC502 ④ REC/PB
IC106 ㉒ PB
IC106 ⑳ PB
Q510 SP/LP SWITCH
Q505, Q507
CUE DRUM SPEED CORRECTION
Q512 SP/LP SWITCH
REV DRUM SPEED CORRECTION
Q504 Q506
Q508 CUE CAPSTAN SPEED CORRECTION
Q511 SP/LP SWITCH
Q509 REV CAPSTAN SPEED CORRECTION
Q502
Q503 Q506
Q513 SP/LP GAIN SW
Q515
CUE
REV
FG 4
FG 8
CUE + REV
SP/LP
(SYSTEM CONTORL)
DRUM ERROR
CAP ERROR
TF-4 (MC-4 BOARD IC502 ④)
Q508, Q510 Q509, Q516
FREQUENCY LOCK
CAP PU (SYSTEM C
IC504(1/2)
IC505(1/4) CUE+REV GAIN SW
IC504(1/2)
CAPSTAN DC BIAS
IC505(1/4)
SP/LP DC BIAS SWITCH
RV503 CAP LP
RV504 CAP SP
(SYSTEM CONTROL)
CUE + REV
CAP CW/CCW
CAP ON
Q514
EMER DE
VIDEO BLOCK
AR-1 BOARD (VIDEO)
IC101 REC/PB AMP
VIDEO HEAD CH1
VIDEO HEAD CH2
PB AMP CH1
PB AMP CH2
REC AMP CH1
REC AMP CH2
Q106 BUFFER
PB Y RF
PB AFM
REC Y RF
REC C RF
REC AFM
Q101 MIX
RV103 REC ATF
REC ATF RF
V1-6 BOARD (SERVO)
PB ATF RF
PB C RF (VIDEO)
Q114 BUFFER
LPF
Q121, 123 AGC AMP
R/P PB MODE (SYSTEM CONTROL)
Q122 REC/PB SWITCH
IC106 ATF SERVO
(SYSTEM CONROL)
TS A
TS B
SAMPLING HOLD A
AMP
ATF ERROR
SAMPLING HOLD B
SCHMITT
ATF LOCK (SYSTEM CONTROL)
RV110 ATF BAL
FL108 16KHz BPF
TP118
Q119, Q120 PEAK DET
FL107 47KHz BPF
TP119
Q117, Q118 PEAK DET
Q113 LPF
Q112 LPF
RF SW PULSE (MC-4 BOARD)
IC105
DIVIDER 58, 50, 36, 40
5.9MHz OSC
X103
(SYSTEM CONTROL)
SEL 1
SEL 2
SYS RESET
(5.9MHz)
8.8Vp-p
IC105 ⑨ REC/PB



IC502 ⑧ REC/PB
IC502 ⑰ REC/PB
IC502 ⑱ REC/PB
IC502 ④ REC/PB
IC502 ② REC/PB
IC106 ㉒ PB
IC106 ⑳ PB
IC105 ⑨ REC/PB
TP501 CAPSP
TP502 DFG
TP503 DREF
RV502 SW P
CFG
DFG
SYSTEM SYNC
SWP ADJ
PULSE GENERATOR
MMV
JOG VD (VIDEO)
RF SW PULSE (VIDEO, AUDIO, SYSTEM CONTROL)
BOTH REC CONT (VIDEO)
SYSTEM SYNC (SYSTEM CONTROL)
D/A CONV
DC BIAS MEMORY
DRUM PHASE ERROR
DRUM SPEED ERROR
CAPSTAN SPEED ERROR
CAPSTAN PHASE ERROR
ATF ERROR
TF4 (SV-13 BOARD)
Q514
LP/SP (SV-13 BOARD)
Q510 SP/LP SWITCH
Q512 SP/LP SWITCH
Q505, Q507 CUE DRUM SPEED CORRECTION
REV DRUM SPEED CORRECTION
Q504 Q506
Q508 CUE CAPSTAN SPEED CORRECTION
Q511 SP/LP SWITCH
Q509 REV CAPSTAN SPEED CORRECTION
Q513 SP/LP GAIN SW
Q502
Q503 Q506
Q515
FG 4
FG 8
CUE + REV
SP/LP
(SYSTEM CONTORL)
DRUM ERROR
CAP ERROR
IC106 ATF SERVO
(SYSTEM CONROL) TS A TS B
R/P PB MODE SYSTEM CONTROL
Q122 REC/PB SWITCH
LPF
SAMPLING HOLD A
SAMPLING HOLD B
AMP
SCHMITT
ATF ERROR
ATF LOCK (SYSTEM CONTROL)
RV110 ATF BAL
FL108 16KHz BPF TP118
Q119, Q120 PEAK DET
FL107 47KHz BPF TP119
Q117, Q118 PEAK DET
RF SW PULSE (MC-4 BOARD)
IC105
DIVIDER 1/58, 1/50, 1/36, 1/40
5.9MHz OSC
X103
Q113 LPF
Q112 LPF
(SYSTEM CONTROL) SEL 1 SEL 2 SYS RESET
IC501 DRUM MOTOR DRIVE
PULSE WIDTH MODULATION
OSC
UNREG (POWER)
Q501 PWM POWER DRIVE
COM
DRUM ON (SYSTEM CONTROL)
POWER OFF
UNREG (POWER)
OVER LOAD DET
BRAKE
IB CONTROL
Vcc
EMF DET
CW/CCW
EMF MIX
STARTER
DRUM(U)
DRUM(V)
DRUM(L)
DRUM MOTOR
Q508, Q510 Q509, Q516 FREQUENCY LOCK
TF-4 (MC-4 BOARD) IC502 ④
CAP Vcc (SYSTEM CONTROL)
UNREG (POWER)
Q503 PROTECTOR
Q502 PWM POWER DRIVE
CAP PULSE (SYSTEM CONTROL)
Q517
IC502 CAPSTAN MOTOR DRIVE
COMP
PULSE WIDTH MODULATION
IC504(1/2)
IC505(1/4) SP/LP GAIN SW
IC505(1/4) CUE+REV GAIN SW
Q513
CAP CW/CCW
IC504(1/2) CAPSTAN DC BIAS
IC505(1/4) SP/LP DC BIAS SWITCH
RV503 CAP LP
RV504 CAP SP
LP/SP (MC-4 BOARD) Q514
POWER OFF
120° LOGIC
HE POWER
IB CONT
CAP(U)
CAP(V)
CAP(W)
CAPSTAN MOTOR
(SYSTEM CONTROL) CUE + REV CAP CW/CCW CAP ON
Q515 NORMAL
Q514 EMERGENCY DETECT
CAP Vcc (SYSTEM CONTROL)
TP507
LEVEL SHIFT
D504
HALL DEVICE
VE
UHE(+)(-) VHE(+)(-) WHE(+)(-)
SV-13 BOARD

3-9. SYSTEM CONTROL BLOCK DIAGRAM


SK-7 BOARD
S604 REC
S603 STOP
S602 PLAY
S601 INSERT
S608 PAUSE
S607 FF
S606 REW
S605 EJECT
TP601,602
SP/LP
S610 RESET
S609 MEMORY
S902
REC PROOF
MP/ME
RECOG A
RECOG B
RECOG COM
SCAN A
SCAN B
SCAN C
SCAN D
S752
REC·REVIEW
RR-10 BOARD
START/STOP
Q601,Q602
INPUT MATRIX
S/S 5V
IC602
TC4028BF
DECODER
VDD
VSS
IC601
μPD7503G-324
MODE CONTROL CPU
COM3
COM2
COM1
COM0
ND601
LCD DISPLAY
LED STB
MECHACON CS
VA S/P STB
D SERVO CS
SYSTEM SYNC
START
SCAN IN A
IC605(1/4)
CLOCK OSC
X601
400KHz
IC604(1/2),IC605(1/4)
INITIAL RESET
RESET(CPU)
ZOOM TEL
ZOOM WIDE
Q611
Q610
ZOOM T
ZOOM W
SI
SO
SCK
SYSTEM RESET
POWER OFF
CAM ON
VTR ON
VDD
VSS
Q606,Q607
POWER SWITCH
S/S 5V
(SWITCHED)
SYS 5V
(SWITCHED SYS5V)
(UN SWITCHED BACKUP SYS5V)
RS-2 BOARD (1/2)
Q601
Q602,Q607
COUNTER LED CONT
PH602
REEL SENSOR TB
PH601
REEL SENSOR TA
PH603
REEL SENSOR S
INPUT MATRIX
REEL TB
REEL TA
REEL S
Q603-Q605
VTR F/F
CAM F/F
EXT POWER ON
(POWER)
POWER OFF
CAM ON
VTR ON
Q609,Q612
D611-D613
INPUT MATRIX
DEW
BATTERY END
BATTERY PRE END
TP606
DEW SENSOR
IC604
DEW SENSOR
Q608
DRUM HEATER
Q602,Q605
HEATER SWITCH
Q604
5V REG
(UNSWITCHED BACKUP SYS5V)
BACK UP CAPACITOR
Q601,D603
BATTERY-OPERATION DETECTOR
RV601
V SENS
HS-4 BOARD (1/2)
BATTERY 6V GRIP
CN104
MULTI CONNECTOR
MAIN 6V
BATTERY 6V
(MULTI CONNECTOR OUT)
(MULTI CONNECTOR IN)
UNREG 6V
CN605
REMOTE CONNECTOR
SERIAL CONT
VI-6 BOARD (SYSTEM CONTROL)
Q612
SENSOR SWITCH
S/S 5V
IC604(1/2)
BATTERY-END SENSOR
IC604(1/2)
BATTERY-PRE'END SENSOR
IC603
MB88201BF-170
COMMUNICATION CONTROL CPU
X601
6MHz
VCC
SYSTEM RESET
START FLAG
START BIT
SCK EN
VTR AREA
CAM/TT AREA
SCK OUT
VSS
Q611
D603
Q610
GATE
Q608
VTR AREA SWITCH
Q609
Q606
Q607
CAM/TT AREA SWITCH
DS-10 BOARD
(DC-DC CONVERTER REG 5V SWITCHED)
S/S 5V
IC603
CX7991TP
LED DRIVER
STB
SI
SCK
SET
VDD
VSS
INS
FWD
REC
EJECT
PAUSE
D614 VTR POWER
D615 INSERT
D616 PLAY
D617 REC
D618 EJECT
D619 PAUSE
VA S/P CS
MC-4 BOARD
(SYSTEM CONTROL)
IC601
MB88505-238M
MECHANISM CONTROL CPU
S/S 5V
VCC
GND
X601
6MHz
X
EX
BRAKE START
BRAKE HOLD
Q617,Q618
BRAKE SOLENOID START
Q615,Q616
BRAKE SOLENOID HOLD
BRAKE SOLE
LM CONT (CCW)
LM CONT (CW)
CM CONT (CCW)
CM CONT (CW)
CONT M (CCW)
CONT M (CW)
LD-7 BOAR
D901
TAPE T/E LED
TAPE T/E LED
Q628,Q629
FLICKER
Q607
RF SW P (SERVO)
TAPE LED
SV-13 BOARD(1/2)
Q504
TAPE END SENSOR
S901
CASSETTE LOCK
OPEN SP
MATRIX OUT 1
MATRIX OUT 2
MATRIX OUT 3
MATRIX IN 1
MATRIX IN 2
MATRIX IN 3
MATRIX IN 4
Q605
Q606
Q612
Q611
Q602
Q614
Q613
INPUT MATRIX
TAPE END
TAPE TOP
ATF LOCK
MECHACON CS
Q609,Q610
GATE
SI (IC601'S SO)
SC
SO (IC601'S SI)
RESET
Q625-Q627
PB·PAUSE MONO MULTI
FG 2
FG 4
FG 8
CAP ON
Q603
CAP CW/CCW
SEL 1
SEL 2
TS A
TS B
DRUM ON
Q604
RF SW P
CAP PULSE
CUE+REV
CAPSTAN FG
D SERVO RESET
(DIGITAL SERVO RESET)
FE P
RP PB MODE
(DIGITAL SERVO CHIP SELECT)
ZOOM T
ZOOM W
(CAMERA)
IC107 CX7991
SERIAL IN PARALLEL OUT
S/S5V
VDD
STB
DATA
CLK
RESET
VSS
CAM REC
TALLY
SP/LP
SYS RESET
JOG
MP/ME
VA PB MODE
CAM/LINE
VA PB MODE
VIDEO MUTE
AUDIO MUTE
CAM REC
TALLY
R/P PB MODE (VIDEO)
(VIDEO)
CAM/LINE
VA PB MODE
AUDIO MUTE
(AUDIO)


MC-4 BOARD
(SYSTEM CONTROL)
IC601 MB88505-238M MECHANISM CONTROL CPU
S/S 5V
VCC
GND
X601 6MHz
X
EX
BRAKE START
BRAKE HOLD
LM CONT (CCW)
LM CONT (CW)
CM CONT (CCW)
CM CONT (CW)
TAPE T/E LED
MATRIX OUT 1
MATRIX OUT 2
MATRIX OUT 3
MATRIX IN 1
MATRIX IN 2
MATRIX IN 3
MATRIX IN 4
MECHACON CS
S I (IC601'S SO)
S C
S O (IC601'S SI)
RESET
FG 2
FG 4
FG 8
CAP ON
CAP CW/CCW
SEL 1
SEL 2
TS A
TS B
DRUM ON
RF SW P
CAP PULSE
CUE+REV
CAPSTAN FG
D SERVO RESET
FE P
RP PB MODE
Q617,Q618 BRAKE SOLENOID START
Q615,Q616 BRAKE SOLENOID HOLD
BRAKE SOLENOID
MOTOR POWER
Q628,Q629 FLICKER
RF SW P (SERVO)
Q607
Q605
Q606 Q612 Q611 Q602
INPUT MATRIX
Q614
Q613
Q609,Q610 GATE
Q625-Q627 PB-PAUSE MONO MULTI
Q603
Q604
(DC-DC CONVERTER REG 5V SWITCHED)
S/S 5V
IC603 CX7991TP LED DRIVER
STB
SI
SCK
SET
VDD
VSS
INS
FWD
REC
EJECT
PAUSE
D614 VTR POWER
D615 INSERT
D616 PLAY
D617 REC
D618 EJECT
D619 PAUSE
CD
PLAY
VA S/P CS
S/S 5V (SWITCHED)
LD-1 BOARD
D901 TAPE T/E LED
TAPE LED
SV-13 BOARD (1/2)
Q504 TAPE END SENSOR
HS-4 BOARD (1/2)
Q603 TAPE TOP SENSOR
S901 CASSETTE LOCK
OPEN: SP/LP AUTOMATIC DISTINCTION
TAPE END
TAPE TOP
ATF LOCK
CONT M (CCW)
CONT M (CW)
MD (MECHANISM DECK)
IC501 MB3763PS
LOADING MOTOR DRIVE
CCW
CW
M901 LOADING MOTOR
LOADING SWITCH
LOAD SW A
LOAD SW B
LOAD SW C
IC502 MB3763PF
CONTROL MOTOR DRIVE
CONTROL MOTOR
MODE SWITCH
MODE SW A
MODE SW B
MODE SW C
D501-D503 INPUT MATRIX
MODE SW K0
MODE SW K1
MODE SW K2
LOAD SW COM
MODE SW COM
RS-2 BOARD (1/2)
Q619-Q621 RV601
MOTOR POWER
MOTOR POWER REGULATOR
UNREG 6V
Q630 UNREG(SV) DET
UNREG (SV)
MOTOR GND
Q601,Q623,Q624 OVER CURRENT DETECTOR
RV501 STILL
SV-13 BOARD (1/2)
CAP VCC
ATF LOCK
FG 2
FG 4
FG 8
CAP ON
CAP CW/CCW
SEL 1
SEL 2
TS A
TS B
DRUM ON
RF SW P
CAP PULSE
CUE+REV
C FG
D SERVO RESET
(DIGITAL SERVO RESET)
(SERVO)
(DIGITAL SERVO CHIP SELECT)
D SERVO CS
SYSTEM SYNC
SI
SO
SCK
Q612 SENSOR SWITCH
S/S 5V
IC603 MB88201BF-170 COMMUNICATION CONTROL CPU
VCC
X601 6MHz
X
EX
SYSTEM RESET
START FLAG
START BIT
VTR AREA
CAM/TT AREA
SCK EN
SCK OUT
VSS
Q610 GATE
Q609
SO
SI
CAM/TT AREA SWITCH
DS-10 BOARD
IC107 CX7991 SERIAL IN PARALLEL OUT
S/S5V
VDD
STB
DATA
CLK
RESET
VSS
CAM REC
TALLY
SP/LP
SYS RESET
JOG
MP/ME
VA PB MODE
CAM/LINE
VA PB MODE
VIDEO MUTE
AUDIO MUTE
ZOOM T
ZOOM W
(CAMERA)
CAM REC
TALLY
(VIDEO)
R/P PB MODE (VIDEO)
CAM/LINE
VA PB MODE
AUDIO MUTE
(AUDIO)
SP/LP
SYS RESET
FE ON
FE-2 BOARD
Q101,Q102 ERASE OSC
TP101
DRUM
ROTARY TRANS FORMER
FLYING ERASE HEAD

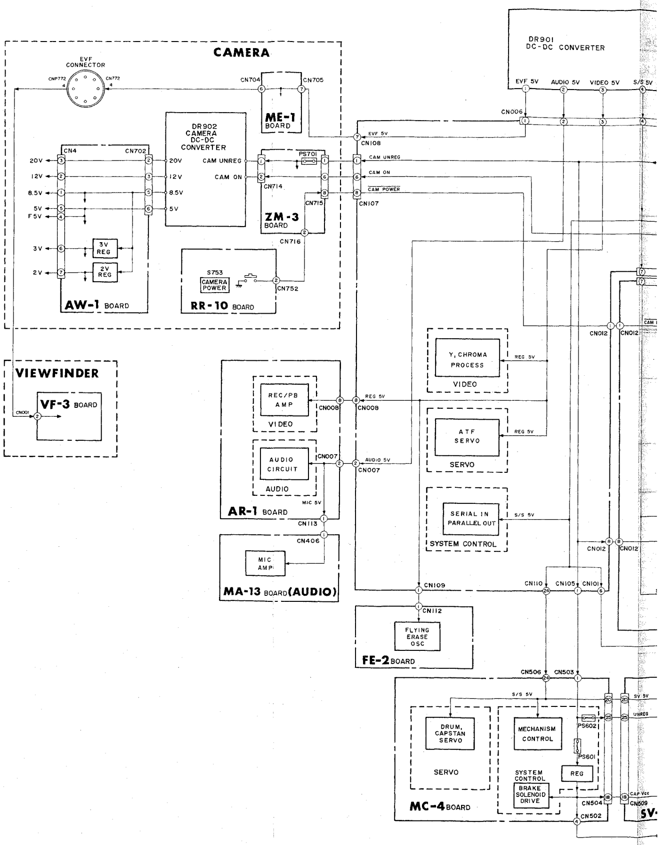
3-16. CAPSTAN SERVO OPERATION (MC-4 AND VI-6 BOARDS)

	REC	PB
CSPDA (IC502⑮)	CAPSTAN SPEED ERROR	CAPSTAN SPEED ERROR
CPHDA (IC502⑯)	CAPSTAN PHASE ERROR	Held at approx. 2.0VDC
ATF ERROR (IC106㉕)	Held at approx. 2.5VDC	ATF ERROR

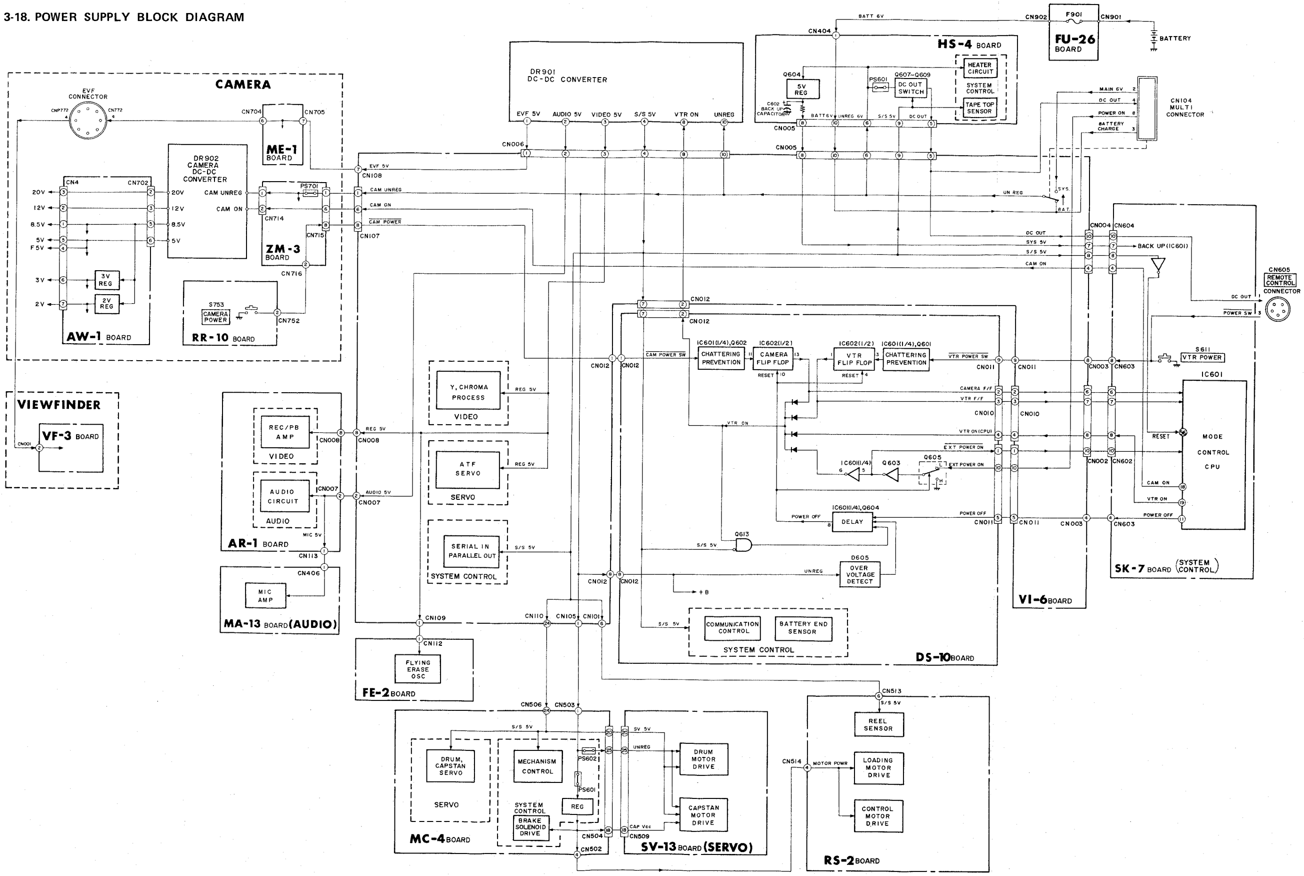
3-17. ATF SERVO PILOT SIGNAL (VI-6 BOARD)

PILOT SIGNAL (IC105⑦)		CONTROL SIGNAL	
NAME	FREQUENCY	SEL 1 (IC105④)	SEL 2 (IC105⑤)
f_1	102.54kHz (378/58 f_H)	H	H
f_2	118.95kHz (378/50 f_H)	L	H
f_3	165.21kHz (378/36 f_H)	H	L
f_4	148.69kHz (378/40 f_H)	L	L

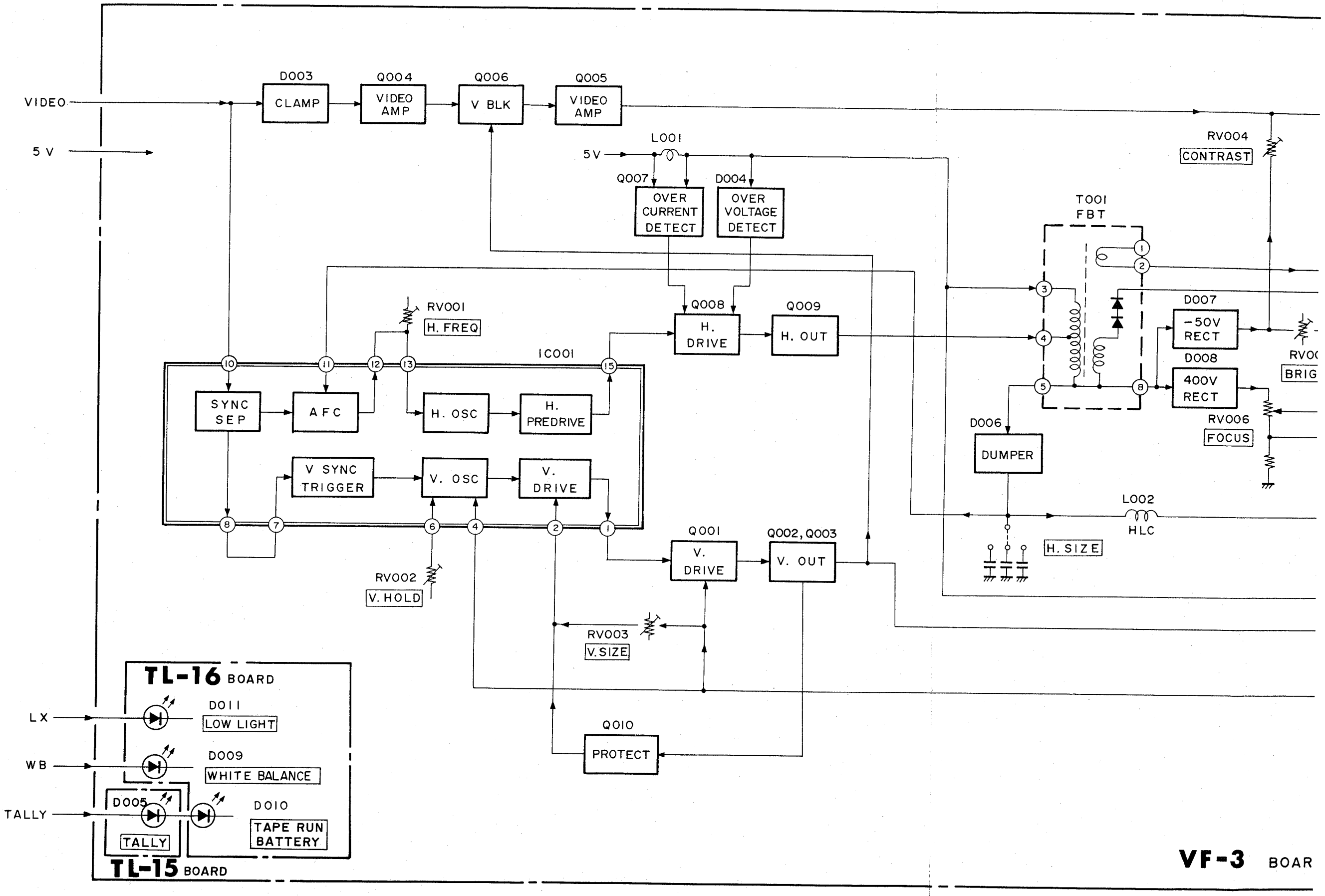
3-18. POWER SUPPLY BLOCK DIAGRAM


CAMERA
EVF CONNECTOR
CNP772
CN772
4
CN704
CN705
ME-1 BOARD
DR902 CAMERA DC-DC CONVERTER
CN4
CN702
20V
12V
8.5V
5V
F5V
3V
2V
3V REG
2V REG
AW-1 BOARD
CAM UNREG
CAM ON
CN714
PS701
CN715
ZM-3 BOARD
CN716
S753
CAMERA POWER
CN752
RR-10 BOARD
DR901 DC-DC CONVERTER
EVF 5V
AUDIO 5V
VIDEO 5V
S/S 5V
CN006
CN108
CAM UNREG
CAM ON
CAM POWER
CN107
CN012
VIEWFINDER
VF-3 BOARD
CN001
REC/PB AMP
VIDEO
CN008
AUDIO CIRCUIT
AUDIO
CN007
MIC 5V
AR-1 BOARD
CN113
CN406
MIC AMP
MA-13 BOARD (AUDIO)
REG 5V
AUDIO 5V
Y, CHROMA PROCESS
VIDEO
ATF SERVO
SERVO
SERIAL IN PARALLEL OUT
SYSTEM CONTROL
S/S 5V
CN109
CN112
FLYING ERASE OSC
FE-2 BOARD
CN110
CN105
CN101
CN506
CN503
DRUM, CAPSTAN SERVO
SERVO
MECHANISM CONTROL
PS602
PS601
REG
SYSTEM CONTROL
BRAKE SOLENOID DRIVE
MC-4 BOARD
CN504
CN502
SV 5V
UNREG
CAP Vcc
CN509
SV

3-18. POWER SUPPLY BLOCK DIAGRAM


CAMERA
EVF CONNECTOR
CNP772
CN772
CN704
CN705
ME-1 BOARD
DR902 CAMERA DC-DC CONVERTER
CN4
CN702
20V
12V
8.5V
5V
F5V
3V
2V
3V REG
2V REG
AW-1 BOARD
CAM UNREG
CAM ON
PS701
CN714
CN715
CN716
ZM-3 BOARD
S753 CAMERA POWER
CN752
RR-10 BOARD
VIEWFINDER
VF-3 BOARD
CN001
DR901 DC-DC CONVERTER
EVF 5V
AUDIO 5V
VIDEO 5V
S/S 5V
VTR ON
UNREG
CN006
CN108
CN107
EVF 5V
CAM POWER
HS-4 BOARD
CN404
BATT 6V
Q604
5V REG
C602 BACK UP CAPACITOR
PS601
Q607-Q609 DC OUT SWITCH
HEATER CIRCUIT
SYSTEM CONTROL
TAPE TOP SENSOR
BATT 6V
UNREG 6V
S/S 5V
DC OUT
CN005
CN902
F901
CN901
FU-26 BOARD
BATTERY
MAIN 6V
DC OUT
POWER ON
BATTERY CHARGE
CN104 MULTI CONNECTOR
UN REG
SYS.
BAT.
CN004
CN604
SYS 5V
BACK UP (IC601)
CN605 REMOTE CONTROL CONNECTOR
POWER SW
S611 VTR POWER
IC601
MODE CONTROL CPU
RESET
CAM ON
VTR ON
POWER OFF
CN003
CN603
CN002
CN602
SK-7 BOARD (SYSTEM CONTROL)
CN012
IC601(1/4),Q602 CHATTERING PREVENTION
IC602(1/2) CAMERA FLIP FLOP
IC602(1/2) VTR FLIP FLOP
IC601(1/4),Q601 CHATTERING PREVENTION
CAM POWER SW
VTR POWER SW
CN011
CAMERA F/F
VTR F/F
CN010
VTR ON(CPU)
EXT POWER ON
IC601(1/4)
Q603
Q605
IC601(1/4),Q604 DELAY
Q613
D605 OVER VOLTAGE DETECT
+B
COMMUNICATION CONTROL
BATTERY END SENSOR
SYSTEM CONTROL
DS-10 BOARD
VI-6 BOARD
Y, CHROMA PROCESS
VIDEO
REG 5V
ATF SERVO
SERVO
SERIAL IN PARALLEL OUT
SYSTEM CONTROL
REC/PB AMP
VIDEO
CN008
AUDIO CIRCUIT
AUDIO
CN007
MIC 5V
AR-1 BOARD
CN113
CN406
MIC AMP
MA-13 BOARD (AUDIO)
CN109
CN112
FLYING ERASE OSC
FE-2 BOARD
CN110
CN105
CN101
CN506
CN503
DRUM, CAPSTAN SERVO
SERVO
MECHANISM CONTROL
PS602
PS601
REG
SYSTEM CONTROL
BRAKE SOLENOID DRIVE
CN504
CN502
MC-4 BOARD
SV 5V
UNREG
DRUM MOTOR DRIVE
CAPSTAN MOTOR DRIVE
CAP Vcc
CN509
SV-13 BOARD (SERVO)
CN513
REEL SENSOR
CN514
MOTOR POWR
LOADING MOTOR DRIVE
CONTROL MOTOR DRIVE
RS-2 BOARD

3-19. VIEW FINDER BLOCK DIAGRAM


VIDEO
5 V
D003
CLAMP
Q004
VIDEO AMP
Q006
V BLK
Q005
VIDEO AMP
L001
5 V
Q007
OVER CURRENT DETECT
D004
OVER VOLTAGE DETECT
RV004
CONTRAST
T001
FBT
RV001
H. FREQ
IC001
SYNC SEP
AFC
H. OSC
H. PREDRIVE
V SYNC TRIGGER
V. OSC
V. DRIVE
Q008
H. DRIVE
Q009
H. OUT
D007
-50V RECT
D008
400V RECT
RV006
FOCUS
RV00
BRIG
D006
DUMPER
L002
HLC
H. SIZE
RV002
V. HOLD
Q001
V. DRIVE
Q002, Q003
V. OUT
RV003
V. SIZE
Q010
PROTECT
TL-16 BOARD
LX
D011
LOW LIGHT
WB
D009
WHITE BALANCE
TALLY
D005
TALLY
D010
TAPE RUN BATTERY
TL-15 BOARD
VF-3 BOAR

3-10. SYSTEM CONTROL – CAMERA, VIDEO AND AUDIO BLOCK INTERFACA

SIGNAL	I/O	REF.No., PIN No.	MODE									
			STOP	FF	REW	CUE	REVIEW	PB	PB. PAUSE	REC	REC. PAUSE	REVERSE
R/P PB MODE	O	MC-4BOARD IC601㉒	H	H	H	H	H	H	H	L	H	H
$\overline{\text{FEP}}$	O	MC-4BOARD IC601㉓	H	H	H	H	H	H	H	L	H	H
ZOOM TEL	O	SK-7BOARD IC601⑨	L	L	L	L	L	L	L	L	L	L
ZOOM WIDE	O	SK-7BOARD IC601⑰	L	L	L	L	L	L	L	L	L	L
SP/$\overline{\text{LP}}$	O	VI-6BOARD IC107①	*5	*5	*5	*5	*5	*2	*5	H	H	*2
JOG	O	VI-6BOARD IC107②	L	L	L	H	H	L	H	L	L	H
MP/$\overline{\text{ME}}$	O	VI-6BOARD IC107③	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3
VA PB MODE	O	VI-6BOARD IC107④	L	L	L	H	H	H	H	L	L	H
CAM/$\overline{\text{LINE}}$	O	VI-6BOARD IC107⑤	L*4	L*4	L*4	L*4	L*4	L*4	L*4	L*4	L*4	L*4
CAM REC	O	VI-6BOARD IC107⑥	L*4	L*4	L*4	L	L	L	L	L*4	L*4	L
TALLY	O	VI-6BOARD IC107⑦	L	L	L	L	L	L	L	L*4	L	L
$\overline{\text{VA PB MODE}}$	O	VI-6BOARD IC107⑧	H	H	H	L	L	L	L	H	H	L
VIDEO MUTE	O	VI-6BOARD IC107⑨	L	L	L	L	L	L	L	L	L	L
AUDIO MUTE	O	VI-6BOARD IC107⑪	L	L	L	H	H	L	H	L	L	H

*2: BY RECORDED TAPE
*3: BY USING TAPE
*4: "H" WHEN "CAMERA POWER" IS ON
*5: HOLD THE PREVIOUS LEVEL

3-11. MECHANISM CONTROL CPU – SERVO BLOCK INTERFACE (MC-4 BOARD)

SIGNAL	I/O	REF.No., PIN No.	MODE									
			STOP	FF	REW	CUE	REVIEW	PB	PB. PAUSE	REC	REC. PAUSE	REVERSE
CAP FG	I	IC601㊴										
RF SW PULSE	I	IC601㉔										
MONO MULTI	I	IC601 MATRIX IN										
ATF LOCK	I	IC601 MATRIX IN										
$\overline{\text{DRUM ON}}$	O	IC601⑳	H	L	L	L	L	L	L	L	L	L
$\overline{\text{CAP ON}}$	O	IC601⑨	H	L	L	L	L	L	H	L	H	L
CAP CW/$\overline{\text{CCW}}$	O	IC601⑩	L	L	H	L	H	L	L	L	L	H
D SERVO RESET	O	IC601㊼	L	L	L	L	L	L	L	L	L	L
$\overline{\text{CAP PULSE}}$	O	IC601㉖	H	H	H	H	H	H	H	H	H	H
CUE + REVIEW	O	IC601㉗	L	L	L	H	H	L	L	L	L	L
FG2	O	IC601㊽	L	H	H	L	H	L	L	L	L	L
FG4	O	IC601①	L	H	H	L	H	L	L	L	L	L
FG8	O	IC601②	L	H	H	H	L	L	L	L	L	L
SEL1	O	IC601⑫										
SEL2	O	IC601⑬										
TSA	O	IC601⑭										
TSB	O	IC601⑯										

3-12. CAPSTAN SPEED SELECTOR (IC602) OPERATION (MC-4 BOARD)

MODE / SIGNAL	SP			FF/REW
	FWD	CUE	REV	
CFG (Hz) (IC602⑥)	960	8903	6515	
CAPFG (Hz) (IC602⑫)	960	989	930	
FG2 (IC602⑪)	L	L	H	H
FG4 (IC602⑭)	L	L	H	H
FG8 (IC602②)	L	H	L	H
$\frac{\text{CFG}}{\text{CAPFG}}$	1/1	1/9	1/7	1/15

*1: The change in the dividing ratio of IC602 by the variation of signals FG2, FG4 and FG8.

3-13. SYSTEM CONTROL – MECHANISM BLOCK INTERFACE

SIGNAL	I/O	REF.No., PIN No.	STOP	FF	REW	CUE	REV	PB	PB. PAUSE	REC	REC. PAUSE	RVS
MODE SW*1	I	MC-4BOARD IC601 MATRIX IN	3	6	6	1	5	1	1	1	1	5
LOAD SW*2	I	MC-4BOARD IC601 MATRIX IN	3	3	3	3	3	3	3	3	3	3
CASSETTE LOCK SW	I	MC-4BOARD IC601 MATRIX IN	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
$\overline{\text{TAPE TOP}}$ *4	I	MC-4BOARD IC601 MATRIX IN	NC	NC	H	NC	H	NC	NC	NC	NC	H
$\overline{\text{TAPE END}}$ *4	I	MC-4BOARD IC601 MATRIX IN	H/NC	H	NC	H	NC	H	H	H	H	NC
REEL TA	I	SK-7BOARD IC601 MATRIX IN										
REEL TB	I	SK-7BOARD IC601 MATRIX IN										
REEL S	I	SK-7BOARD IC601 MATRIX IN										
CM CONT (CW)	O	MC-4BOARD IC601③	L	L	L	L	L	L	L	L	L	L
CM CONT (CCW)	O	MC-4BOARD IC601④	L	L	L	L	L	L	L	L	L	L
LM CONT (CW)	O	MC-4BOARD IC601⑤	L	L	L	L	L	L	L	L	L	L
LM CONT (CCW)	O	MC-4BOARD IC601⑥	L	L	L	L	L	L	L	L	L	L
$\overline{\text{BRAKE START}}$	O	MC-4BOARD IC601⑦	H	H	H	H	H	H	H	H	H	H
$\overline{\text{BRAKE HOLD}}$	O	MC-4BOARD IC601⑧	H	L	L	H	L	H	H	H	H	L
$\overline{\text{TAPE T/E LED}}$	O	MC-4BOARD IC601㉑	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3

*1: REFER TO "MODE SWITCH PATTERN".
*2: REFER TO "LOADING SWITCH PATTERN".
*3: H/L PULSE
*4: "NC" indicates that the IC601 does not perform detection.

3-14. MODE SWITCH PATTERN

(↷) CW ← MODE SWITCH ROTATING DIRECTION → CCW (↶)

SWITCH POSITION (MODE)		EJECT		LOAD		FF/ REW		STOP		FWD		RVS	
SWITCH PATTERN	7	4	7	2	7	6	7	3	7	1	7	5	7
MODE SW A	×	○	×	○	×	○	×	×	×	×	×	×	×
MODE SW B	×	○	×	×	×	×	×	×	×	○	×	○	×
MODE SW C	×	×	×	○	×	×	×	○	×	○	×	×	×

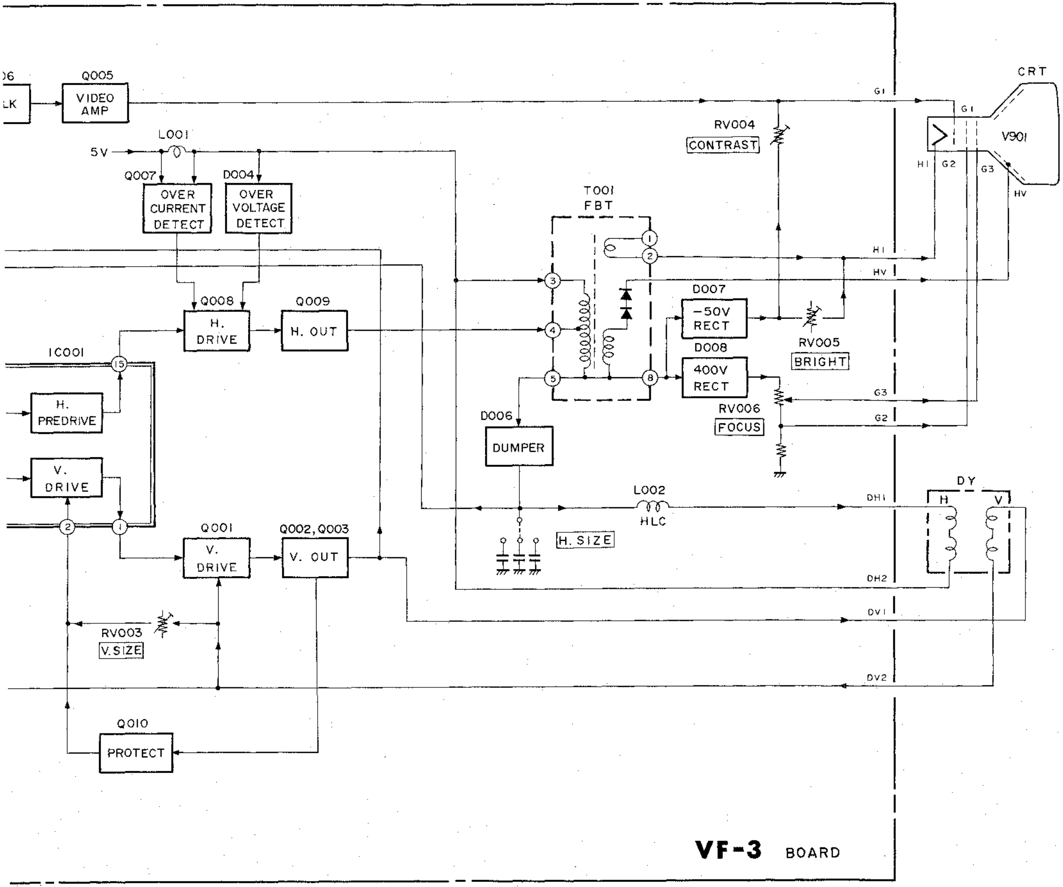
○ . . . CLOSE, × . . . OPEN

3-15. LOADING SWITCH PATTERN

(↶) CCW ← LOADING SWITCH ROTATING DIRECTION → CW (↷)

SWITCH POSITION (MODE)	LOADING TOP		UNLOAD WAITE		DRUM START		T REEL START		LOADING END
SWITCH PATTERN	1	7	5	7	4	7	6	7	3
LOAD SW A	×	×	×	×	○	×	○	×	×
LOAD SW B	○	×	○	×	○	×	×	×	×
LOAD SW C	○	×	×	×	×	×	×	×	○

○ . . . CLOSE, × . . . OPEN



Q005
VIDEO AMP
L001
5V
Q007
OVER CURRENT DETECT
D004
OVER VOLTAGE DETECT
Q008
H. DRIVE
Q009
H. OUT
IC001
15
H. PREDRIVE
V. DRIVE
2
1
Q001
V. DRIVE
Q002, Q003
V. OUT
RV003
V.SIZE
Q010
PROTECT
T001
FBT
1
2
3
4
5
8
D007
−50V RECT
D008
400V RECT
RV004
CONTRAST
RV005
BRIGHT
RV006
FOCUS
D006
DUMPER
L002
HLC
H. SIZE
G1
H1
HV
G3
G2
DH1
DH2
DV1
DV2
CRT
V901
DY
H
V
VF-3 BOARD

3-20. TIMING GENERATOR (IC707) TERMINAL FUNCTIONS (CP-9 BOARD)

Pin No.	Pin Name	I/O	Function
1	SP1	O	Sampling hold pulse for color separation
2	SHD	O	Sampling hold pulse for imager output
3	SHP	O	Sampling hold pulse for imager output
4	XV4	O	Imager drive pulse
5	XV2	O	Imager drive pulse
6	Vss		Power supply
7	HTSG	I	Test signal input (GND)
8	XV3	O	Imager drive pulse
9	XV1	O	Imager drive pulse
10	XSG2	O	Imager drive pulse
11	XSG1	O	Imager drive pulse
12	XPG	O	Imager drive pulse
13	XH2	O	Imager drive pulse
14	XH1	O	Imager drive pulse
15	A2	O	External ROM address output
16	A1	O	External ROM address output
17	A0	O	External ROM address output
18	A3	O	External ROM address output
19	VDD		Power supply
20	A4	O	External ROM address output
21	A5	O	External ROM address output
22	A6	O	External ROM address output
23	CM	I	Test signal input (GND)
24	D4	I	ROM data input
25	D3	I	ROM data input
26	D2	I	ROM data input
27	D1	I	ROM data input
28	XVCT	O	Modulation pulse for ROM power supply
29	TEST	I	Test signal input (GND)
30	CP	I	Clock input
31	Vss		Power supply
32	XCK	O	Waveform shaper output
33	CK	I	Waveform shaper input
34	FLD	I	Frame sync signal
35	HD	I	Horizontal sync signal
36	CL	O	Clock output for CX7930
37	VAA	O	Vertical preblanking signal
38	HBLK	O	Horizontal preblanking signal
39	ID	O	ID signal for line sequential scan signal
40	CLP3	O	Clamping pulse
41	CLP2	O	Clamping pulse
42	CLP1	O	Clamping pulse
43	VDD		Power supply
44	XDL2	O	CCD delay-line drive pulse
45	XDL1	O	CCD delay-line drive pulse
46	SH2	O	CCD delay-line sampling hold pulse
47	SH1	O	CCD delay-line sampling hold pulse
48	SP2	O	Sampling hold pulse for color separation

3-21. SYNC GENERATOR (IC708) TERMINAL FUNCTIONS (CP-9 BOARD)

Pin No.	Pin Name	I/O	Function
1	VRI	I	Vertical reset input
2	OFLD1	O	First field output
3	OBF/COLB	O	Burst flag/color blanking output
4	OSYNC	O	Composite sync signal output
5	OFLD	O	Even/odd field select output
6	OBLK	O	Composite blanking signal output
7	OLALT	O	Line select output
8	OHD	O	Horizontal drive output
9	4 *f*SC OUT	O	4 *f*sc output
10	4 *f*SC IN	I	4 *f*sc input
11	NC		
12	OVD	O	Vertical drive output
13	NC		
14	Vss		GND terminal
15	LALTRI	I	Line select reset input
16	TEST	I	Test input
17	NC		
18	NC		
19	OSC	O	Subcarrier output
20	EXT	I	Internal/external mode select
21	MODE1	I	System select input-1
22	MODE2	I	System select input-2
23	HRI	I	Horizontal reset input
24	H COM OUT	O	Phase comparator output
25	CL OUT	O	Clock output
26	CL IN	I	Clock input
27	OFH	O	Horizontal drive frequency output
28	VDD		Power supply terminal (IC board)

3-22. MODE CONTROL CPU (IC601) TERMINAL FUNCTIONS (SK-7 BOARD)

Pin No.	Pin Name	I/O	Function
1	NC		
2	MATRIX OUT control-C	O	Output for matrix decoder
3	MATRIX OUT control-B	O	Output for matrix decoder
4	MATRIX OUT control-A	O	Output for matrix decoder
5	SI	I	Serial input data on inner bus
6	SO	O	Serial output data on inner bus
7	$\overline{\text{SCK}}$	I/O	Inner bus clock
8	START	O	Communication-CPU start flag output
9	ZOOM TEL	O	Camera zooming-in control
10	LED STB	O	Data strobe for LED display serial-in/parallel-out (CX7991)
11	POWER OFF	O	Power-off control
12	MECHACON CS	O	High while communicating with mechanism-control CPU
13	VA S/P STB	O	Data strobe for audio/video serial-in/parallel-out (CX7991)
14	Not used		
15	$\overline{\text{D SERVO CS}}$	O	High while communicating with servo IC (CX20035)
16	SYSTEM RESET	O	Output to reset system when power supply goes on
17	ZOOM WIDE	O	Camera zooming-out control
18	CAM ON	O	Camera power supply (camera D/D CON) control signal
19	VTR ON	O	High while VTR power supply is on
20	X2		Not used
21	X1	(I)	Not used
22	V_{SS}	I	GND
23	VLC_3	O	LCD drive voltage control
24	VLC_2	O	LCD drive voltage control
25	VLC_1	O	LCD drive voltage control
26	V_{DD}	I	SYS 5V (Unswitched)
27	COM3	O	LCD common signal output
28	COM2	O	LCD common signal output
29	COM1	O	LCD common signal output
30	COMO	O	LCD common signal output
31 | 44	Not used		
45	S9	O	LCD segment signal output
46	S8	O	Not used
47	S7	O	LCD segment signal output
48	S6	O	LCD segment signal output
49	S5	O	LCD segment signal output
50	S4	O	LCD segment signal output
51	S3	O	LCD segment signal output
52	S2	O	LCD segment signal output
53	S1	O	LCD segment signal output
54	SO	O	LCD segment signal output
55	INIT1	I	An external interruption request (SYSTEM SYNC input) from the servo IC (CX20035).
56	RESET	I	Mode control reset
57	CL1	I	External system clock input
58	V_{DD}	I	SYS 5V (Unswitched)
59	Not used		
60	SCAN IN D	I	Matrix input
61	SCAN IN C	I	Matrix input
62	SCAN IN B	I	Matrix input
63	SCAN IN A	I	Matrix input
64	MATRIX OUT control-D	I	Output for matrix decoder

3-23. MECHANISM CONTROL CPU (IC601) TERMINAL FUNCTIONS (MC-4 BOARD)

Pin No.	Pin Name	I/O	Function
1	FG4	O	Capstan FG count-down by 1/4
2	FG8	O	Capstan FG count-down by 1/8
3	CM CONT (CW)	O	Control-motor revolution (clockwise/counterclockwise) control CW
4	CM CONT (CCW)	O	Control-motor revolution (clockwise/counterclockwise) control CCW
5	LM CONT (CW)	O	Loading-motor revolution (clockwise/counterclockwise) control CW
6	LM CONT (CCW)	O	Loading-motor revolution (clockwise/counterclockwise) control CCW
7	BRAKE START	O	Main brake start control
8	BRAKE HOLD	O	Main brake hold control
9	CAP ON	O	Capstan-on control
10	CAP CW/CCW	O	Capstan revolution (clockwise/counterclockwise) control
11	NC		
12	SEL 1	O	ATF pilot select-1
13	SEL 2	O	ATF pilot select-2
14	TS A	O	ATF error voltage hold
15	TS B	O	ATF lock hold
16	NC		
17	NC		
18	Vcc	I	S/S 5V power supply (Switched)
19	NC		
20	DRUM ON	O	Drum-on control
21	TAPE T/E LED	O	Top/end-of-tape LED control
22	RP PB MODE	O	RP amplifier control
23	FEP	O	Flying erase-head control
24	RF SW P	I	RF switching pulse input
25	MECHACON CS	I	Mode-control-CPU communication request
26	CAP PULSE	O	Capstan drive voltage maximizing signal
27	CUE + REVIEW	O	High for cue/review operation
28	MATRIX OUT 1	O	Matrix output
29	MATRIX OUT 2	O	Matrix output
30	NC		
31	MATRIX OUT 3	O	Matrix output
32	MATRIX IN 1	I	Matrix input
33	MATRIX IN 2	I	Matrix input
34	MATRIX IN 3	I	Matrix input
35	MATRIX IN 4	I	Matrix input
36	EX	I	Clock generator input
37	X	O	Clock generator output
38	RESET	I	Mechanism-control-CPU reset signal (system reset) issued from mode-control CPU
39	FG	I	Capstan FG input
40	NC		
41	NC		
42	GND		GND
43	NC		
44	SCK	O	8 clock output connected to inner-bus SCK line when MECHACONCS is at High.
45	SO	I	Input terminal of serial data from mode-control CPU, which is connected to inner-bus SO line
46	SI	O	Output terminal of serial data to mode-control CPU, which is connected to inner-bus SI line
47	D SERVO RESET	O	Reset signal for servo control IC (CX20035)
48	FG 2	O	Capstan FG count-down by 1/2

3-24. COMMUNICATION CONTROL CPU (IC603) TERMINAL FUNCTIONS (DS-10 BOARD)

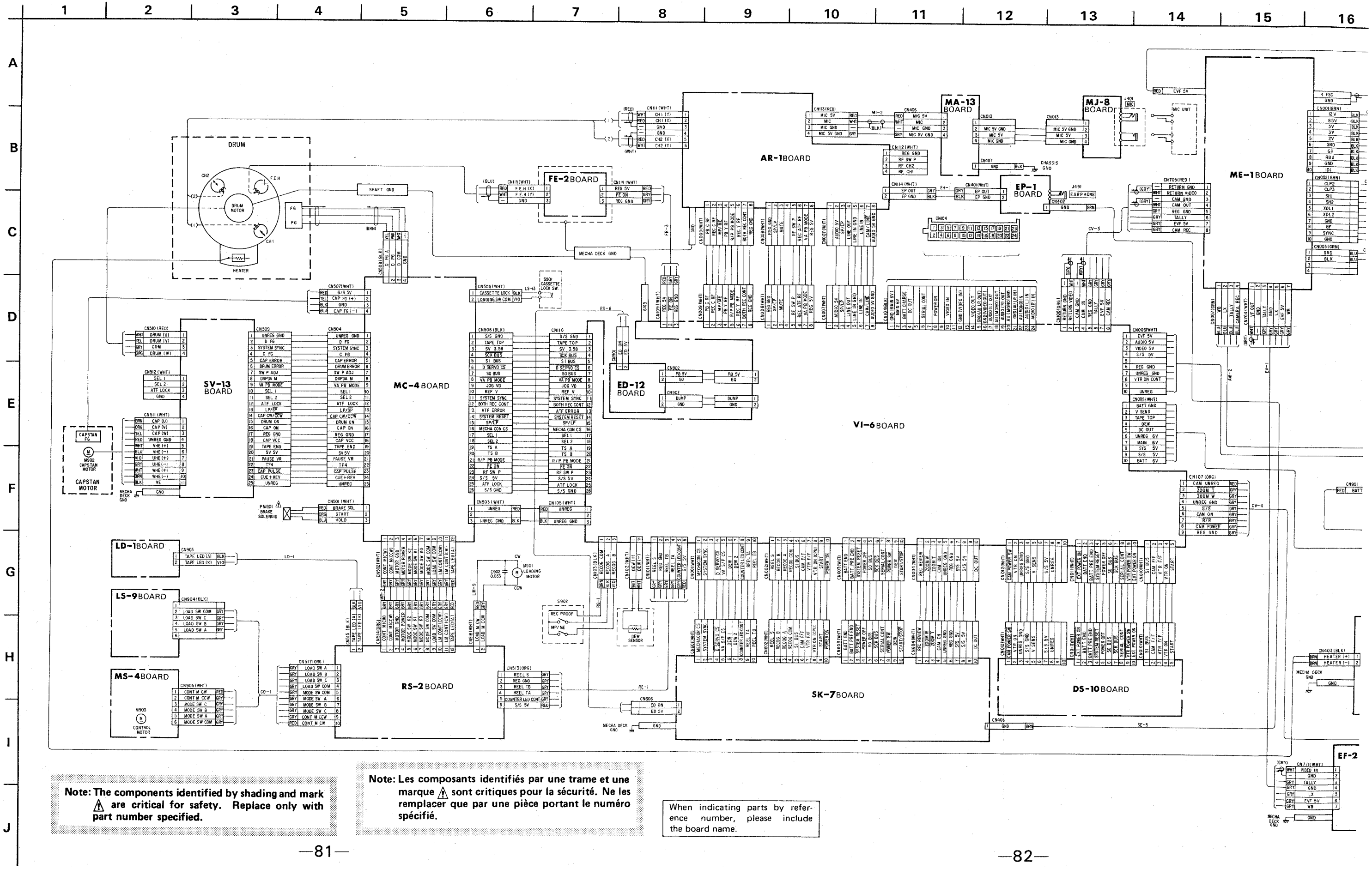
Pin No.	Pin Name	I/O	Function
1	SCK EN	O	Clock output enable
2	$\overline{\text{SCK OUT}}$	O	Clock issued to inner bus
3	INVALID FLAG	O	Not used
4	START FLAG	I	Communication start from mode-control CPU
5	MODE	I	Open
6	X	O	Clock generator output
7	EX	I	Clock generator input
8	V_{SS}	I	GND
9	VTR AREA	O	Data communication time at High (Inner bus → External bus)
10	CAM/TT AREA	O	Data communication time at High (External bus → Inner bus)
11	TT AREA	O	Not used
12	CAM AREA	O	Not used
13	START BIT	O	Start bit on external CTRL-L bus
14	CAM CS		Not used
15	$\overline{\text{SYSTEM RESET}}$	I	Communication control CPU reset issued from mode-control CPU
16	V_{CC}		S/S 5V power supply

3-25. SERIAL-IN/PARALLEL-OUT FOR AUDIO/VIDEO SIGNAL (IC107) TERMINAL FUNCTIONS (VI-6 BOARD)

Pin No.	Pin Name	I/O	Function
1	SP/$\overline{\text{LP}}$ (P1)	O	SP/LP mode select signal
2	JOG (P2)	O	JOG mode
3	MP/$\overline{\text{ME}}$ (P3)	O	Type-of-tape select
4	VA PB MODE (P4)	O	Playback mode (High)
5	CAM/$\overline{\text{LINE}}$ (P5)	O	Camera/line select
6	CAM REC (P6)	O	Camera recording mode signal issued to camera
7	TALLY (P7)	O	Tally LED
8	$\overline{\text{VA PB MODE}}$ (P8)	O	Playback mode (Low)
9	VIDEO MUTE (P9)	O	Video mute control
10	V_{SS}		GND
11	AUDIO MUTE (P10)	O	Audio mute control
12	(P11)	O	Not used
13	SYS RESET (P12)	O	System reset output
14	SO		Not used
15	$\overline{\text{SET}}$		Connected to V_{DD}
16	$\overline{\text{RESET}}$		A reset signal input coming from the remote control CPU.
17	STB	I	It is connected to the V/A SP STB (strobe) coming from the mode control CPU, and it latches the data to the internal register at "H".
18	SI (DATA)	I	Input terminal of serial data from mode-control CPU, which is connected to inner bus SO line
19	CLK	I	Clock input from mode-control CPU, which is connected to inner bus SCK line
20	V_{DD}		S/S 5V

SECTION 4
SCHEMATIC DIAGRAM AND PRINTED WIRING BOARDS

4-1. FRAME SCHEMATIC DIAGRAM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A
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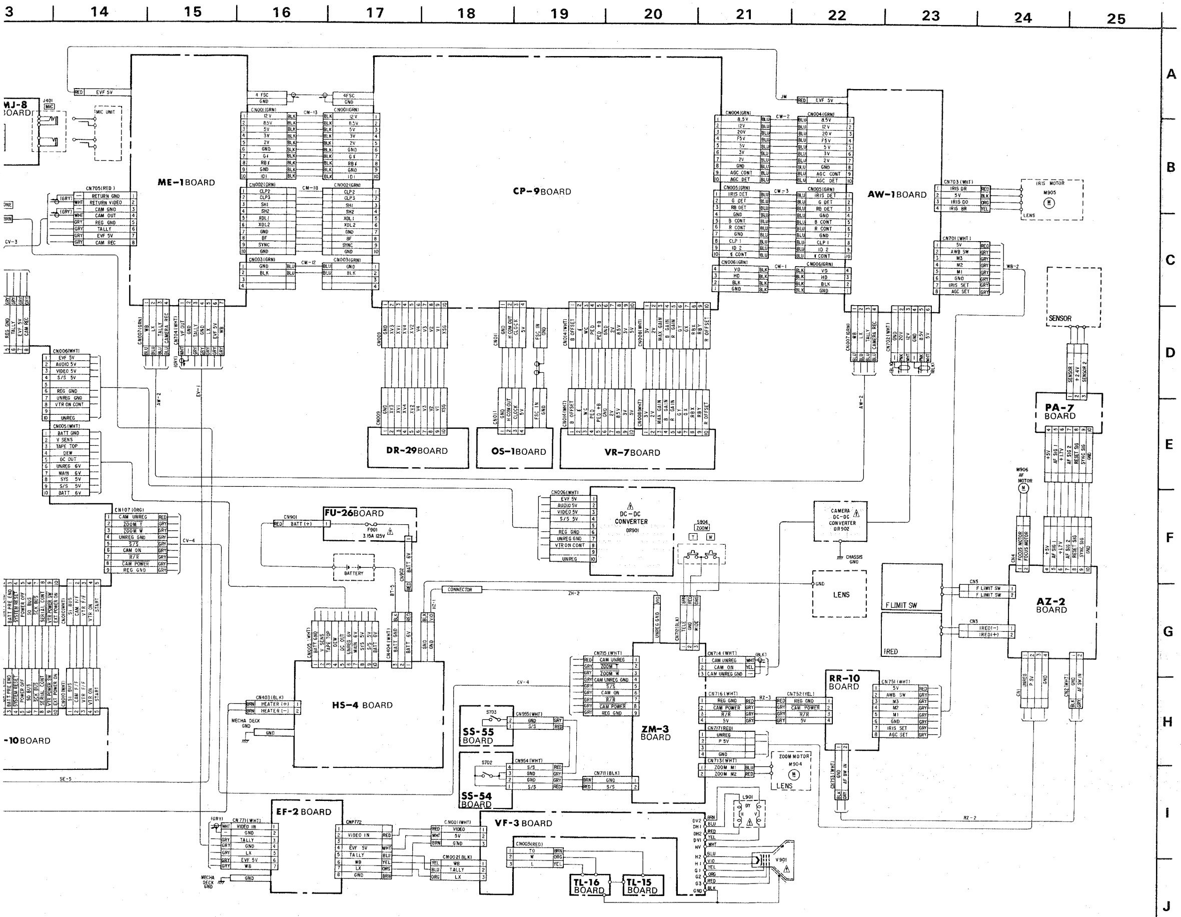
C
D
E
F
G
H
I
J
DRUM
DRUM MOTOR
HEATER
CH1
CH2
FG
PG
SHAFT GND
FE-2 BOARD
MECHA DECK GND
AR-1 BOARD
MA-13 BOARD
MJ-8 BOARD
EP-1 BOARD
ME-1 BOARD
EARPHONE
MIC UNIT
CHASSIS GND
SV-13 BOARD
MC-4 BOARD
ED-12 BOARD
VI-6 BOARD
CAPSTAN FG
M902 CAPSTAN MOTOR
CAPSTAN MOTOR
PM901 BRAKE SOLENOID
S901 CASSETTE LOCK SW
M901 LOADING MOTOR
C902 0.033
S902
REC PROOF
MP/ME
DEW SENSOR
LD-1 BOARD
LS-9 BOARD
MS-4 BOARD
M903 CONTROL MOTOR
RS-2 BOARD
SK-7 BOARD
DS-10 BOARD
EF-2
CN510 (RED)
CN511 (WHT)
CN512 (WHT)
CN509
CN504
CN506 (BLK)
CN110
CN507 (WHT)
CN505 (WHT)
CN508 (BLK)
CN501 (WHT)
CN503 (WHT)
CN105 (WHT)
CN902
CN903
CN904 (BLK)
CN905 (WHT)
CN517 (ORG)
CN513 (ORG)
CN514 (ORG)
CN502 (WHT)
CN515 (BLK)
CN516 (WHT)
CN606
CN406
CN111 (WHT)
CN113 (RED)
CN112 (WHT)
CN114 (WHT)
CN115 (WHT)
CN401 (WHT)
CN402
CN407
CN013
CN104
CN705 (RED)
CN001 (GRN)
CN002 (GRN)
CN003 (GRN)
CN006 (WHT)
CN005 (WHT)
CN107 (ORG)
CN403 (BLK)
CN771 (WHT)
CN901
J401
J491
LS-13
ES-6
FR-3
MI-2
EH-1
CV-3
CV-4
AW-2
EV-1
LD-1
LM-9
MR-2
CO-1
RE-1
RS-1
SE-5

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.



3
14
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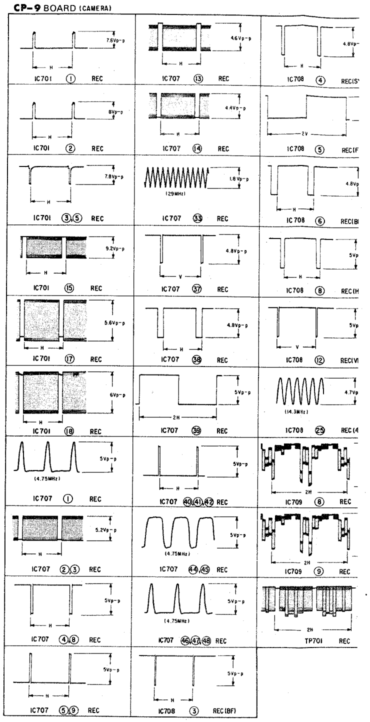
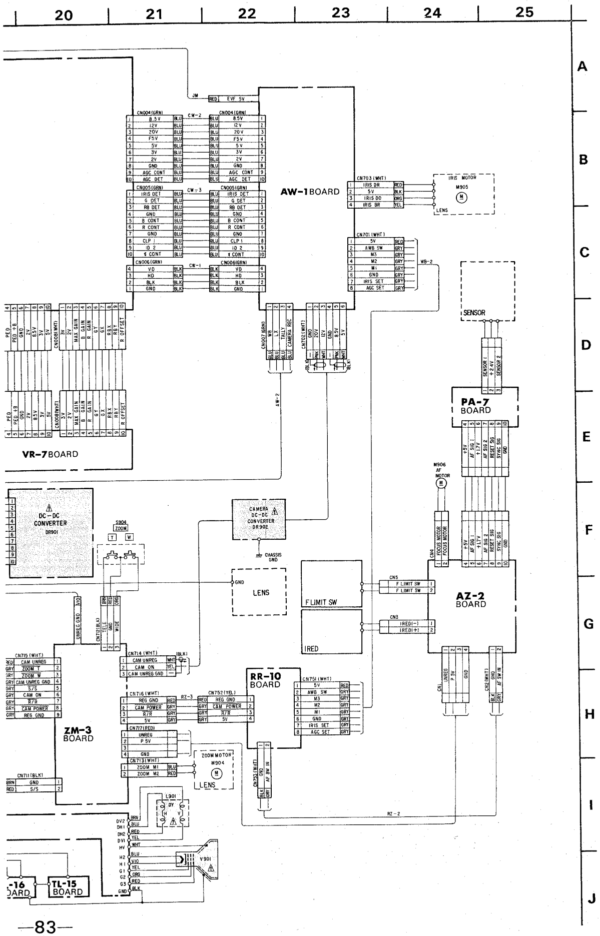
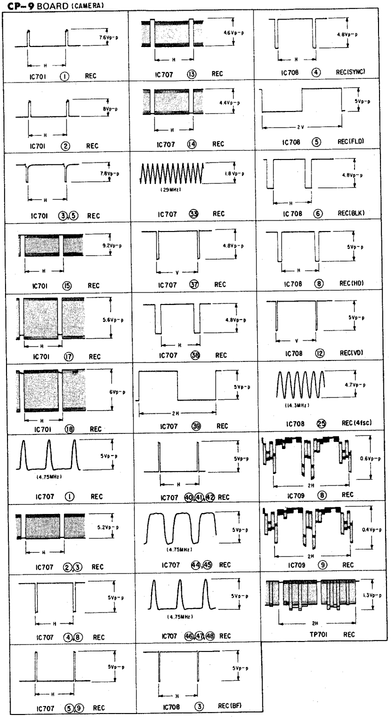
25
A
B
C
D
E
F
G
H
I
J
MJ-8 BOARD
ME-1 BOARD
CP-9 BOARD
AW-1 BOARD
DR-29 BOARD
OS-1 BOARD
VR-7 BOARD
PA-7 BOARD
FU-26 BOARD
DC-DC CONVERTER DR901
CAMERA DC-DC CONVERTER DR902
LENS
F LIMIT SW
IRED
AZ-2 BOARD
HS-4 BOARD
ZM-3 BOARD
RR-10 BOARD
SS-55 BOARD
SS-54 BOARD
-10 BOARD
EF-2 BOARD
VF-3 BOARD
TL-16 BOARD
TL-15 BOARD
IRIS MOTOR M905
SENSOR
M906 AF MOTOR
ZOOM MOTOR M904
BATTERY
V901
L901
CM-13
CM-18
CM-12
CW-2
CW-3
CW-1
WB-2
RZ-3
RZ-2
ZH-2
CV-3
CV-4
SE-5



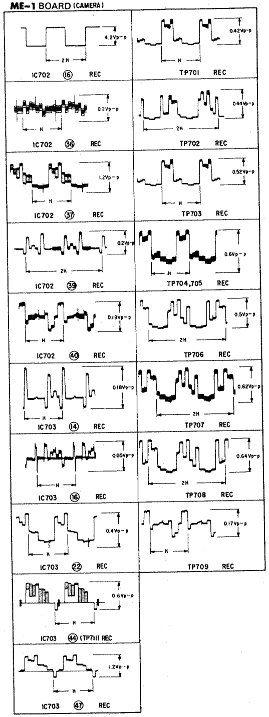
CP-9 BOARD (CAMERA)
IC701 ① REC
IC707 ⑬ REC
IC708 ④ REC
IC701 ② REC
IC707 ⑭ REC
IC708 ⑤ REC
IC701 ③⑤ REC
IC707 ㉝ REC
IC708 ⑥ REC
IC701 ⑮ REC
IC707 ㊲ REC
IC708 ⑧ REC
IC701 ⑰ REC
IC707 ㊳ REC
IC708 ⑫ REC
IC701 ⑱ REC
IC707 ㊴ REC
IC708 ㉕ REC
IC707 ① REC
IC707 ㊵㊶㊷ REC
IC709 ⑧ REC
IC707 ②③ REC
IC707 ㊹㊺ REC
IC709 ⑨ REC
IC707 ④⑧ REC
IC707 ㊻㊼㊽ REC
TP701 REC
IC707 ⑤⑨ REC
IC708 ③ REC (BF)
7.6Vp-p
8Vp-p
7.8Vp-p
9.2Vp-p
5.6Vp-p
6Vp-p
5Vp-p
5.2Vp-p
4.6Vp-p
4.4Vp-p
1.6Vp-p
4.8Vp-p
4.7Vp-p
(29MHz)
(4.75MHz)
(14.3MHz)
H
V
2H
2V


20
21
22
23
24
25
A
B
C
D
E
F
G
H
I
J
AW-1 BOARD
CN004(GRN)
CN005(GRN)
CN006(GRN)
CN703(WHT)
CN701(WHT)
CN707(GRN)
CN702(WHT)
IRIS MOTOR
M905
LENS
SENSOR
PA-7 BOARD
VR-7 BOARD
CN008(WHT)
DC-DC CONVERTER
DR901
S904
ZOOM
CAMERA DC-DC CONVERTER
DR902
CHASSIS GND
LENS
F LIMIT SW
IRED
M906
AF MOTOR
AZ-2 BOARD
CN5
CN3
ZM-3 BOARD
CN715(WHT)
CN714(WHT)
CN716(WHT)
CN717(RED)
CN713(WHT)
CN711(BLK)
RR-10 BOARD
CN751(WHT)
CN752(YEL)
ZOOM MOTOR
M904
LENS
L901
DY
V901
-16 OARD
TL-15 BOARD
RZ-2
RZ-3
WB-2
AW-2

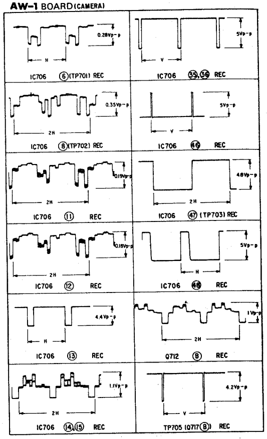
CP-9 BOARD (CAMERA)



ME-1 BOARD (CAMERA)



AW-1 BOARD (CAMERA)



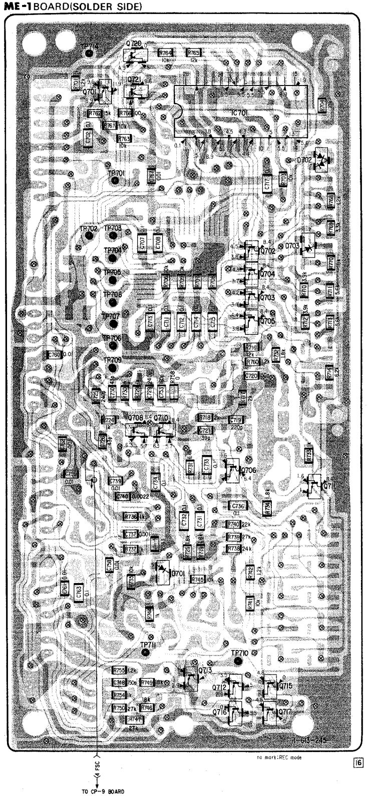
4-2. ZM-3 (ZOOM MOTOR DRIVE), RR-10 (SWITCH), ME-1 (MATRIX/ENCODER), EF-2 (EVF CONNECTOR), AZ-2 (MOTOR DRIVE, AUTO FOCUS PROCESS), PA-7 (IRED), SS-54 (SWITCH), SS-55 (SWITCH) PRINTED WIRING BOARDS

– Ref. No. AZ-2, SS-54, SS-55 BOARD : 1000 series, ME-1 BOARD : 3000 series, FE-2 BOARD : 5000 series, PA-7 BOARD : 6000 series, ZM-3, RR-10 BOARD : 7000 series –

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

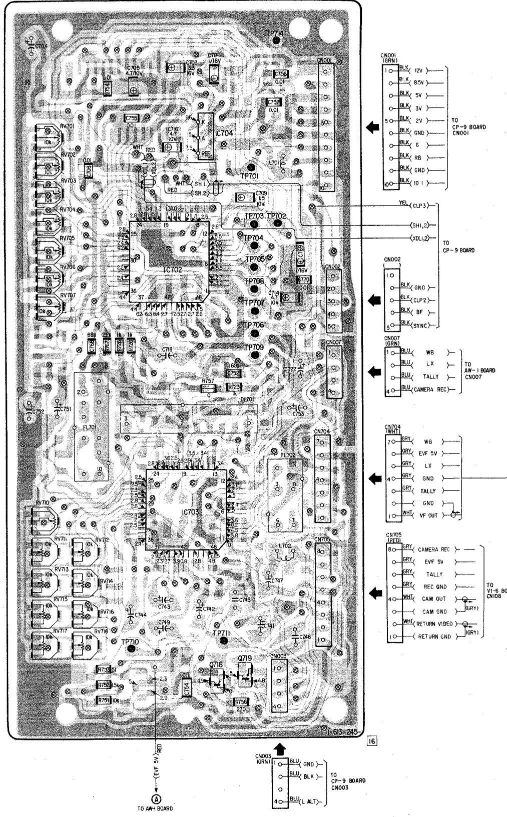
A B C D E F G H I J

ME-1 BOARD(SOLDER SIDE)


TP714
Q720
Q721
Q701
IC701
TP701
D702
TP702
TP703
TP704
TP705
TP708
TP707
TP706
TP709
Q702
Q704
Q703
Q705
D703
Q708
Q710
Q706
Q711
D701
TP711
TP710
Q713
Q712
Q715
Q716
Q717
1-613-245-
4 FSC
TO CP-9 BOARD
no mark : REC mode
16

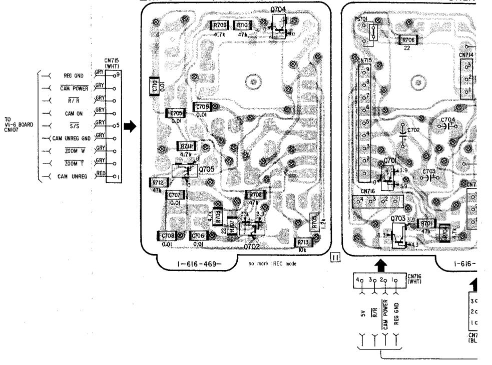
Q, IC	D	ADJ	TP
			714
720			
701,721			
IC701			
IC704		RV701	
	702		
		RV702	701
		RV703	
		RV704	702 703
702	703		704
		RV705	
704			705
IC702		RV706	708
703			
705		RV707	707
			706
			709
708,710			
706			
711			
IC703			
		RV710	
		RV712, RV711	
	701		
		RV714, RV713	
		RV716, RV715	
		RV718, RV717	711 710
713			
712			
719			
715			
718			
716,717			
Q, IC	D	ADJ	TP

ME-1 BOARD (COMPONENT SIDE)


TP714
IC704
TP701
IC702
TP703
TP702
TP704
TP705
TP706
TP707
TP709
RV701
RV702
RV703
RV704
RV705
RV706
RV707
FL701
FL702
IC703
RV710
RV711
RV712
RV713
RV714
RV715
RV716
RV717
RV718
TP710
TP711
Q718
Q719
1-613-245-
16
CN001 (GRN)
1 BLK 12V
BLK 8.5V
BLK 5V
BLK 3V
5 BLK 2V
BLK GND
BLK G
BLK RB
BLK GND
10 BLK ID 1
TO CP-9 BOARD CN001
YEL CLP3
SH1,2
XDL1,2
TO CP-9 BOARD
CN002
1
BLK GND
BLK CLP2
BLK BF
5 BLK SYNC
CN007 (GRN)
1 BLU WB
BLU LX
BLU TALLY
4 BLU CAMERA REC
TO AW-1 BOARD CN007
CN704 (WHT)
7 GRY WB
GRY EVF 5V
GRY LX
4 GRY GND
GRY TALLY
GND
1 WHT VF OUT
CN705 (RED)
8 GRY CAMERA REC
GRY EVF 5V
GRY TALLY
GRY REC GND
4 WHT CAM OUT
CAM GND (GRY)
WHT RETURN VIDEO
1 RETURN GND (GRY)
TO VI-6 BOARD CN108
CN003 (GRN)
1 BLU GND
BLU BLK
4 BLU L ALT
TO CP-9 BOARD CN003
EVF 5V
RED
A
TO AW-1 BOARD

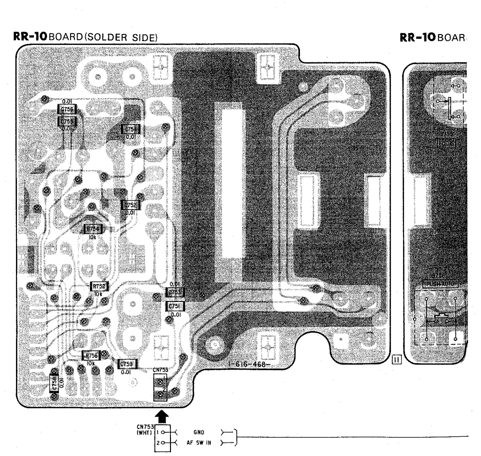
ZM-3 BOARD(SOLDER SIDE)

ZM-3 BOARD(COMPONEN

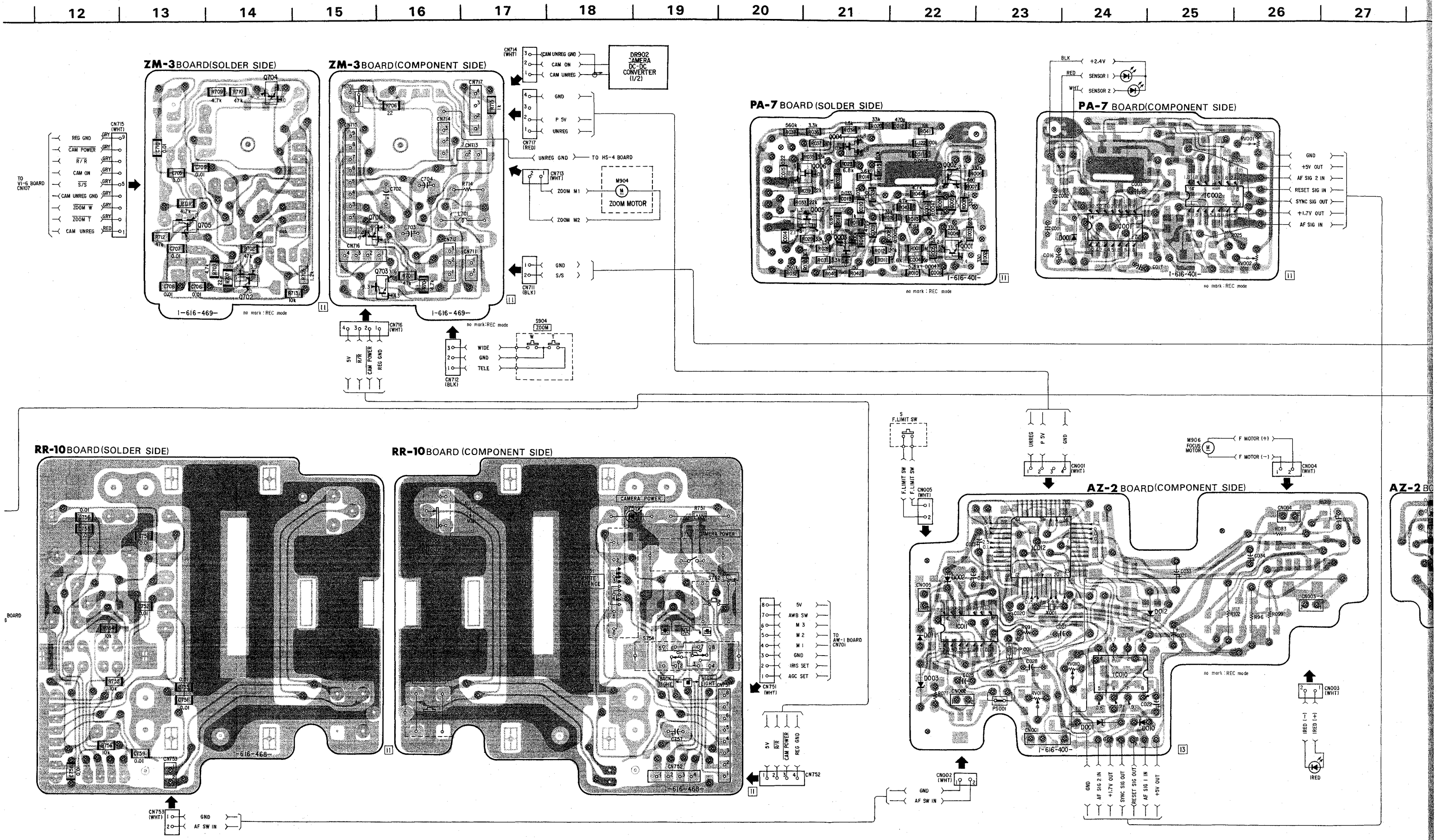

TO VI-6 BOARD CN107
REG GND
CAM POWER
R/R
CAM ON
S/S
CAM UNREG GND
ZOOM W
ZOOM T
CAM UNREG
CN715 (WHT)
GRY
9
5
RED
1
Q704
R709
R710
4.7k
47k
C710
0.01
C705
0.01
C709
0.01
R711
4.7k
Q705
R712
47k
C707
0.01
R708
C708
0.01
C706
0.01
Q702
R713
10k
1-616-469-
no mark : REC mode
11
R701
R706
22
CN715
CN714
C704
C702
Q701
C703
CN716
Q703
1-616-
CN716 (WHT)
4 3 2 1
5V
R/R
CAM POWER
REG GND

RR-10 BOARD(SOLDER SIDE)

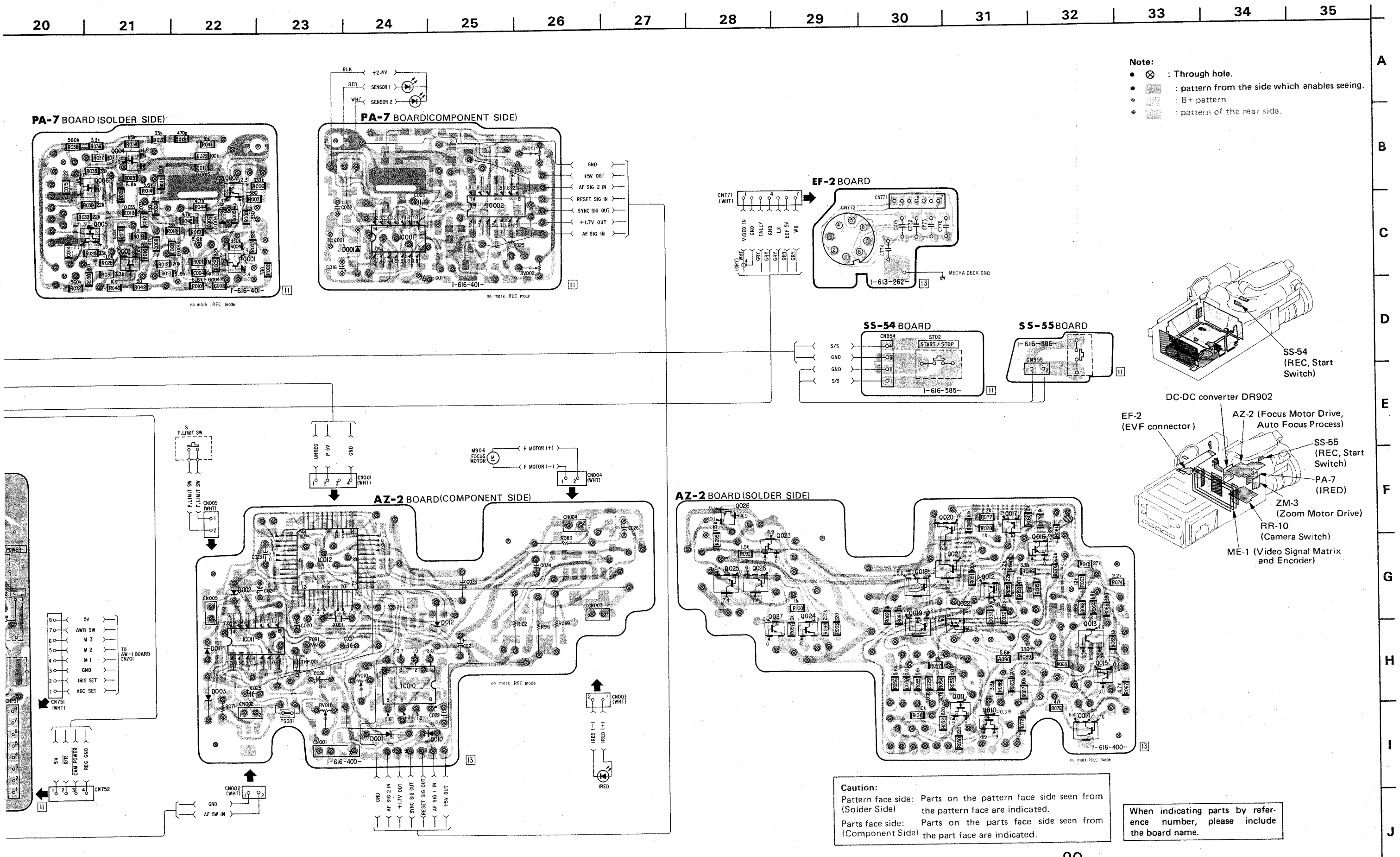
RR-10 BOAR


C756
0.01
C755
0.01
C758
0.01
C752
0.01
R754
10k
R752
10k
C753
0.01
C751
0.01
R756
10k
C759
0.01
C754
0.01
CN753
1-616-468-
11
CN753 (WHT)
1 GND
2 AF SW IN

IRED), SS-54 (SWITCH), SS-55 (SWITCH) PRINTED WIRING BOARDS


12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
ZM-3 BOARD (SOLDER SIDE)
ZM-3 BOARD (COMPONENT SIDE)
1-616-469-
no mark : REC mode
TO VI-6 BOARD CN107
CN715 (WHT)
REG GND
CAM POWER
R/R
CAM ON
S/S
CAM UNREG GND
ZOOM W
ZOOM T
CAM UNREG
CN714 (WHT)
CAM UNREG GND
CAM ON
CAM UNREG
DR902 CAMERA DC-DC CONVERTER (1/2)
CN717 (RED)
GND
P 5V
UNREG
UNREG GND
TO HS-4 BOARD
CN713 (WHT)
ZOOM M1
ZOOM M2
M904
ZOOM MOTOR
CN711 (BLK)
GND
S/S
CN716 (WHT)
5V
R/R
CAM POWER
REG GND
S904 ZOOM
CN712 (BLK)
WIDE
GND
TELE
PA-7 BOARD (SOLDER SIDE)
PA-7 BOARD (COMPONENT SIDE)
1-616-401-
no mark : REC mode
+2.4V
SENSOR 1
SENSOR 2
BLK
RED
WHT
GND
+5V OUT
AF SIG 2 IN
RESET SIG IN
SYNC SIG OUT
+1.7V OUT
AF SIG IN
RR-10 BOARD (SOLDER SIDE)
RR-10 BOARD (COMPONENT SIDE)
1-616-468-
CAMERA POWER
WHITE BALANCE
BACK LIGHT
HIGH LIGHT
CN751 (WHT)
5V
AWB SW
M 3
M 2
M 1
GND
IRIS SET
AGC SET
TO AW-1 BOARD CN701
CN752
CN753 (WHT)
GND
AF SW IN
S F.LIMIT SW
F.LIMIT SW
CN005 (WHT)
CN001 (WHT)
UNREG
P 5V
GND
M906 FOCUS MOTOR
F MOTOR (+)
F MOTOR (−)
CN004 (WHT)
AZ-2 BOARD (COMPONENT SIDE)
1-616-400-
no mark : REC mode
CN003 (WHT)
IRED (−)
IRED (+)
IRED
CN002 (WHT)
GND
AF SW IN
GND
AF SIG 2 IN
+1.7V OUT
SYNC SIG OUT
RESET SIG OUT
AF SIG 1 IN
+5V OUT

CAMERA (1) CAMERA (1)


20
21
22
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26
27
28
29
30
31
32
33
34
35
A
B
C
D
E
F
G
H
I
J
PA-7 BOARD (SOLDER SIDE)
1-616-401-
no mark : REC mode
PA-7 BOARD(COMPONENT SIDE)
BLK
RED
WHT
+2.4V
SENSOR 1
SENSOR 2
GND
+5V OUT
AF SIG 2 IN
RESET SIG IN
SYNC SIG OUT
+1.7V OUT
AF SIG IN
IC001
IC002
D001
RV001
RV002
1-616-401-
no mark : REC mode
EF-2 BOARD
CN771 (WHT)
VIDEO IN
GND
TALLY
GND
LX
EDF 5V
WB
CN771
CN772
MECHA DECK GND
1-613-262-
SS-54 BOARD
CN954
S702
START / STOP
S/S
GND
GND
S/S
1-616-585-
SS-55 BOARD
1-616-586-
CN955
SS-54 (REC, Start Switch)
DC-DC converter DR902
EF-2 (EVF connector)
AZ-2 (Focus Motor Drive, Auto Focus Process)
SS-55 (REC, Start Switch)
PA-7 (IRED)
ZM-3 (Zoom Motor Drive)
RR-10 (Camera Switch)
ME-1 (Video Signal Matrix and Encoder)
S F.LIMIT SW
F.LIMIT SW
CN005 (WHT)
UNREG
P 5V
GND
CN001 (WHT)
M906 FOCUS MOTOR
F MOTOR (+)
F MOTOR (−)
CN004 (WHT)
AZ-2 BOARD(COMPONENT SIDE)
IC011
IC012
IC010
X001
THP001
PS001
RV010
RV011
D001
D002
D003
D010
D011
D012
CN002
CN003
CN004
CN005
1-616-400-
no mark : REC mode
CN003 (WHT)
IRED (−)
IRED (+)
IRED
GND
AF SIG 2 IN
+1.7V OUT
SYNC SIG OUT
RESET SIG OUT
AF SIG 1 IN
+5V OUT
CN002 (WHT)
GND
AF SW IN
5V
AWB SW
M 3
M 2
M 1
GND
IRIS SET
AGC SET
TO AW-1 BOARD CN701
CN751 (WHT)
POWER
5V
R/P
CAM POWER
REG GND
CN752
AZ-2 BOARD (SOLDER SIDE)
Q010
Q011
Q012
Q013
Q014
Q015
Q016
Q017
Q018
Q019
Q020
Q021
Q022
Q023
Q024
Q025
Q026
Q027
Q028
1-616-400-
no mark : REC mode

Note:

- ⊗ : Through hole.
- ▨ : pattern from the side which enables seeing.
- ▨ : B+ pattern
- ▨ : pattern of the rear side.

Caution:

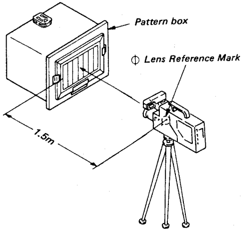
Pattern face side: (Solder Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the part face are indicated.

When indicating parts by reference number, please include the board name.

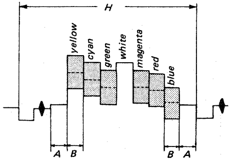
Note:

- Caution when replacing tip parts.
  New parts must be attached after removal of tip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the head.
- All resistors are in ohms, 1/10W unless otherwise noted.
- All capacitors are in µF (p:pF) unless otherwise noted.
  50V or less are not indicated except for electrolytic capacitors.
- All variable and semi fixed resistors have characteristic curve B, unless otherwise noted.
- ▭ : panel designation.
- ▣ : Nonflammable resistor
- ─── : B+ bus.
- ▭ : adjustment for repair.
- Voltage and waveform measuring conditions:
  - (1) Sample object: Pattern box color bars.
  - (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).

1. Connection


Pattern box
Φ Lens Reference Mark
1.5m

2. Adjust the zooming of camera and the tripod so that the output waveform of Fig. a and the picture of Fig. b can be obtain.


H
yellow
cyan
green
white
magenta
red
blue
A
B
B
A

A = B

Fig. a Camera output waveform of TP711 on ME-1 board

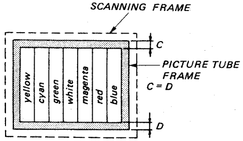

SCANNING FRAME
C
PICTURE TUBE FRAME
C = D
D
yellow
cyan
green
white
magenta
red
blue

Fig. b Picture of TV monitor screen

CAMERA (1) CAMERA (1)

ZM-3 (ZOOM MOTOR DRIVE), RR-10 (SWITCH), ME-1 (MATRIX/ENCODER), EF-2 (EVF CONNECTOR), AZ-2 (MOTOR DRIVE, AUTO FOCUS PROCESS), PA-7 (IRED), SS-54 (S

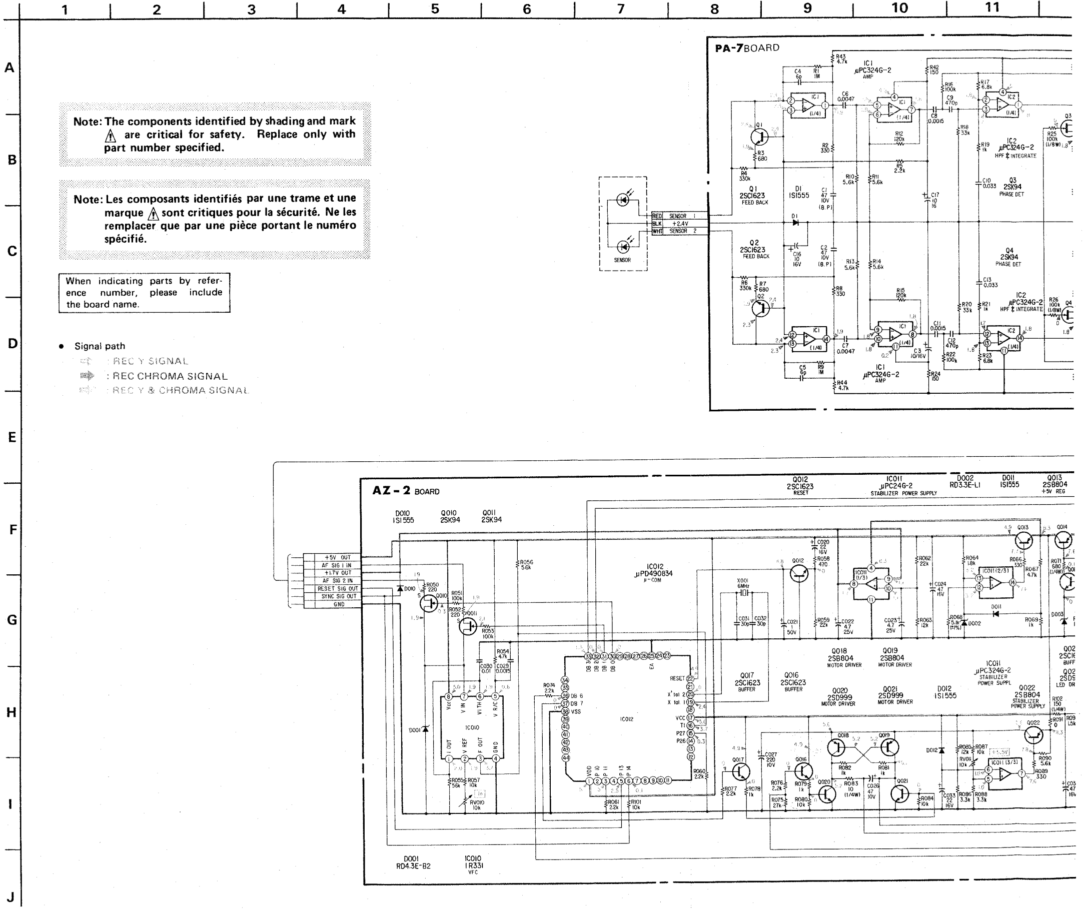
– Ref. No. AZ-2, SS-54, SS-55 BOARD : 1000 series, ME-1 BOARD : 3000 series, FE-2 BOARD : 5000 series, PA-7 BOARD : 6000 series, ZM-3, RR-10 BOARD : 7000 series –

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

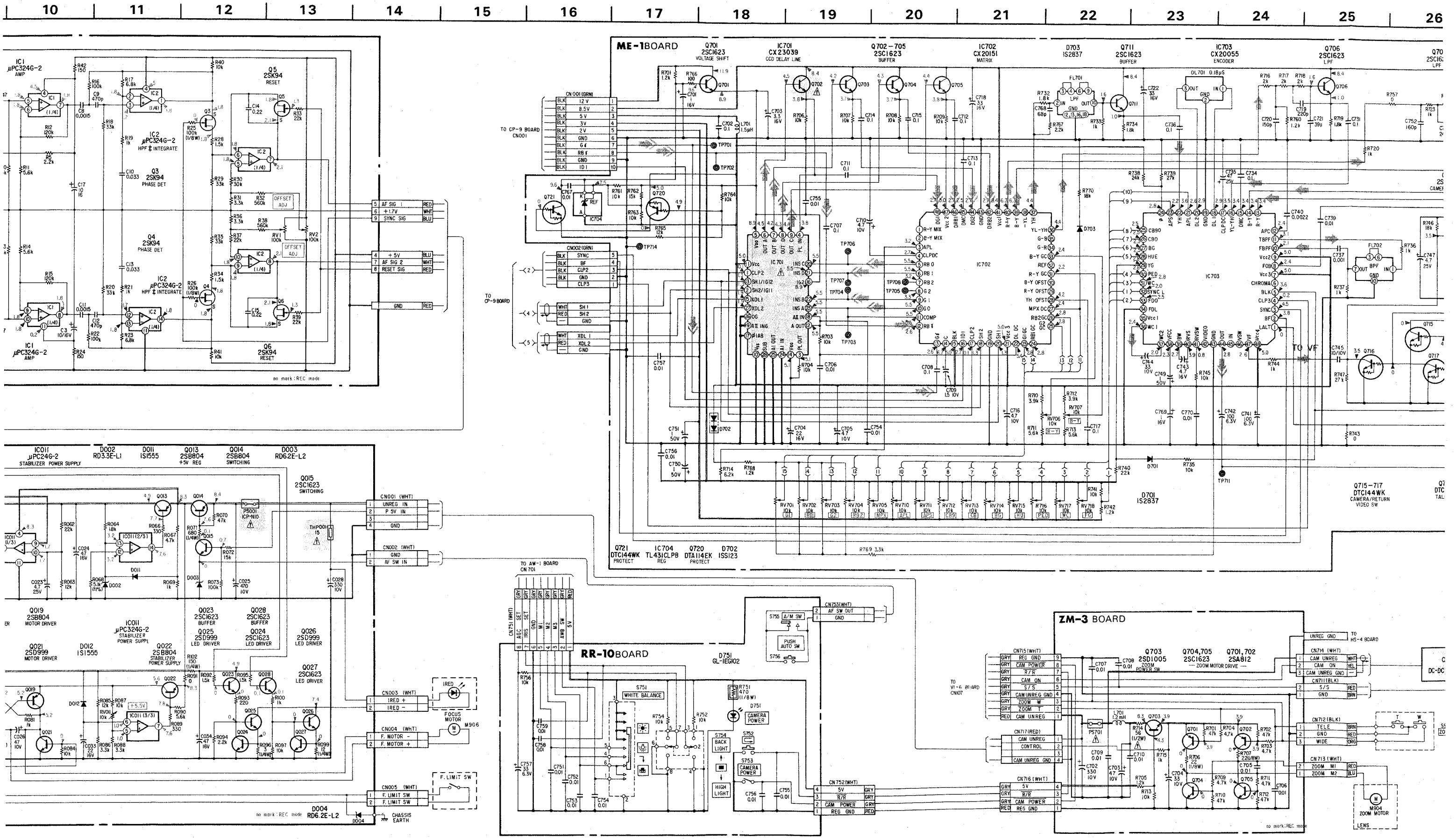
Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- Signal path
  - ⇨ : REC Y SIGNAL
  - ➡ : REC CHROMA SIGNAL
  - ⇨ : REC Y & CHROMA SIGNAL


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
PA-7BOARD
SENSOR
RED SENSOR 1
BLK +2.4V
WHT SENSOR 2
IC1 µPC324G-2 AMP
IC2 µPC324G-2 HPF & INTEGRATE
Q1 2SC1623 FEED BACK
Q2 2SC1623 FEED BACK
Q3 2SK94 PHASE DET
Q4 2SK94 PHASE DET
D1 1S1555
AZ-2 BOARD
+5V OUT
AF SIG 1 IN
+1.7V OUT
AF SIG 2 IN
RESET SIG OUT
SYNC SIG OUT
GND
D010 1S1555
Q010 2SK94
Q011 2SK94
IC012 µPD490834 µ-COM
Q012 2SC1623 RESET
IC011 µPC324G-2 STABILIZER POWER SUPPLY
D002 RD3.3E-L1
D011 1S1555
Q013 2SB804 +5V REG
X001 6MHz
Q018 2SB804 MOTOR DRIVER
Q019 2SB804 MOTOR DRIVER
Q017 2SC1623 BUFFER
Q016 2SC1623 BUFFER
Q020 2SD999 MOTOR DRIVER
Q021 2SD999 MOTOR DRIVER
D012 1S1555
IC011 µPC324G-2 STABILIZER POWER SUPPL
Q022 2SB804 STABILIZER POWER SUPPLY
IC010
D001 RD4.3E-B2
IC010 IR331 VFC

JS PROCESS), PA-7 (IRED), SS-54 (SWITCH), SS-55 (SWITCH) SCHEMATIC DIAGRAM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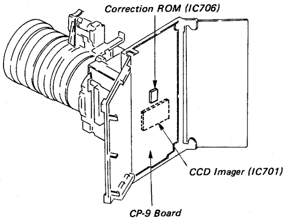
ME-1 BOARD
RR-10 BOARD
ZM-3 BOARD
IC1 μPC324G-2 AMP
IC2 μPC324G-2 HPF INTEGRATE
Q3 2SK94 PHASE DET
Q4 2SK94 PHASE DET
Q5 2SK94 RESET
Q6 2SK94 RESET
Q701 2SC1623 VOLTAGE SHIFT
IC701 CX23039 CCD DELAY LINE
Q702 – 705 2SC1623 BUFFER
IC702 CX20151 MATRIX
D703 1S2837
Q711 2SC1623 BUFFER
IC703 CX20055 ENCODER
Q706 2SC1623 LPF
Q721 DTC144WK PROTECT
IC704 TL431CLPB REG
Q720 DTA114EK PROTECT
D702 1SS123
D701 1S2837
Q715–717 DTC144WK CAMERA/RETURN VIDEO SW
IC011 μPC324G-2 STABILIZER POWER SUPPLY
D002 RD3.3E-L1
D011 1S1555
Q013 2SB804 +5V REG
Q014 2SB804 SWITCHING
D003 RD6.2E-L2
Q015 2SC1623 SWITCHING
Q019 2SB804 MOTOR DRIVER
IC011 μPC324G-2 STABILIZER POWER SUPPL
Q021 2SD999 MOTOR DRIVER
D012 1S1555
Q022 2SB804 STABILIZER POWER SUPPLY
Q023 2SC1623 BUFFER
Q028 2SC1623 BUFFER
Q025 2SD999 LED DRIVER
Q024 2SC1623 LED DRIVER
Q026 2SD999 LED DRIVER
Q027 2SC1623 LED DRIVER
D004 RD6.2E-L2
TO CP-9 BOARD CN001
TO CP-9 BOARD
TO AW-1 BOARD CN701
TO VI-6 BOARD CN107
TO HS-4 BOARD
D751 GL-1EG102
S751 WHITE BALANCE
S754 BACK LIGHT
S753 CAMERA POWER
S755 A/M SW
S756 PUSH AUTO SW
Q703 2SD1005 ZOOM POWER SW
Q704,705 2SC1623
Q701,702 2SA812 ZOOM MOTOR DRIVE
M904 ZOOM MOTOR
LENS
M906 FOCUS MOTOR
IRED
F. LIMIT SW
DC-DC
CHASSIS EARTH
no mark : REC mode

- **Precautions for replacement of CCD imager block**
- The CCD imager block (IC701, IC706) mounted on the CP-9 board is a pair of a CCD imager and a correction ROM* to optimize its characteristics.
  This correction ROM is manufactured to match the pair CCD imager, and the CCD imager only, or the correction ROM only, cannot be exchanged.
  * Some models which do not require any correction are not mounted with a correction ROM.
- The CCD imager supplied as a service part is divided into two types depending on the characteristics. Take the following steps after examining the service set.
  (1) A CCD imager and correction ROM are supplied together:
  Replace the CCD imager and correction ROM simultaneously. Mount the supplied correction ROM when a correction ROM is not mounted in the service set.
  (2) A CCD imager only is supplied:
  This CCD imager requires no correction. Remove any correction ROM mounted in the service set and replace the CCD imager only.
- A CCD imager block (IC701, IC706) is not mounted on the mounted CP-9 board suplied as a service part.
  Remove the CCD imager block from the previous board and remount it on the new board when repairing or exchanging the CP-9 board.
- Adjust the entire camera section when the CCD imager block is exchanged.


Correction ROM (IC706)
CCD Imager (IC701)
CP-9 Board

CCD Imager Block

4-3. CP-9 (CCD IMAGER, VIDEO PROCESS), OS-1 (OSC), VR-7 (VIDEO PROCESS), DR-29 (TIMING GENERATOR), AW-1 (AUTO WHITE BALA

– Ref. No. CP-9, OS-1, VR-7, DR-29 BOARD : 2000 series, AW-1 BOARD : 4000 series –

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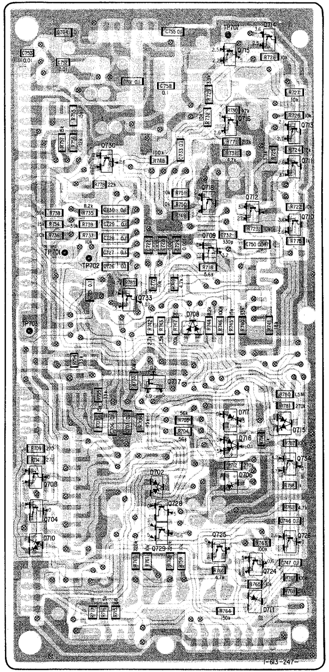
J

AW-1BOARD(SOLDER SIDE)

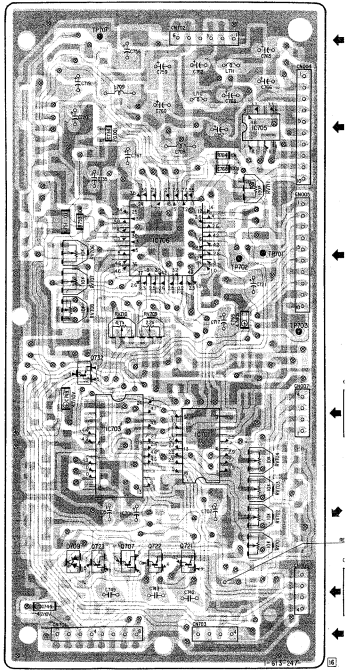

TP701
TP702
TP707
IC705
IC706
Q708
Q704
Q710
Q730
Q733
Q702
Q728
Q729
Q725
Q724
Q726
Q715
Q716
Q717
Q734
Q706
Q712
Q713
Q711
Q710
Q709
Q718
D708
D711
1-613-247-

no mark : REC mode

16

Q , IC	D	ADJ	TP
			707
714			
715			
IC705 716 713			
730 711			
		RV711	
718 712 710			
IC706 709		RV706	701
			702
		RV707	
733		RV708	
	708	RV709,RV710	703
732 717			
	717 715		
IC701,IC703	716		
734		RV704	
708	706 702	RV703	
704 728		RV702	
729			
726 725	710	RV701	
721,722,707,723,724	709		
	711		
Q , IC	D	ADJ	TP

AW-1 BOARD(COMPONENT SIDE)


TP707
TP701
TP702
TP703
CN702
CN704
CN705
CN707
CN703
IC705
IC706
IC703
IC704
Q732
D709
Q723
Q707
Q722
Q721
1-613-247-

16

Note:
- ⊗ : Through hole.
- ▨ : pattern from the side which enables seeing.
- ▨ : B+ pattern
- ▨ : pattern of the rear side.

Caution:

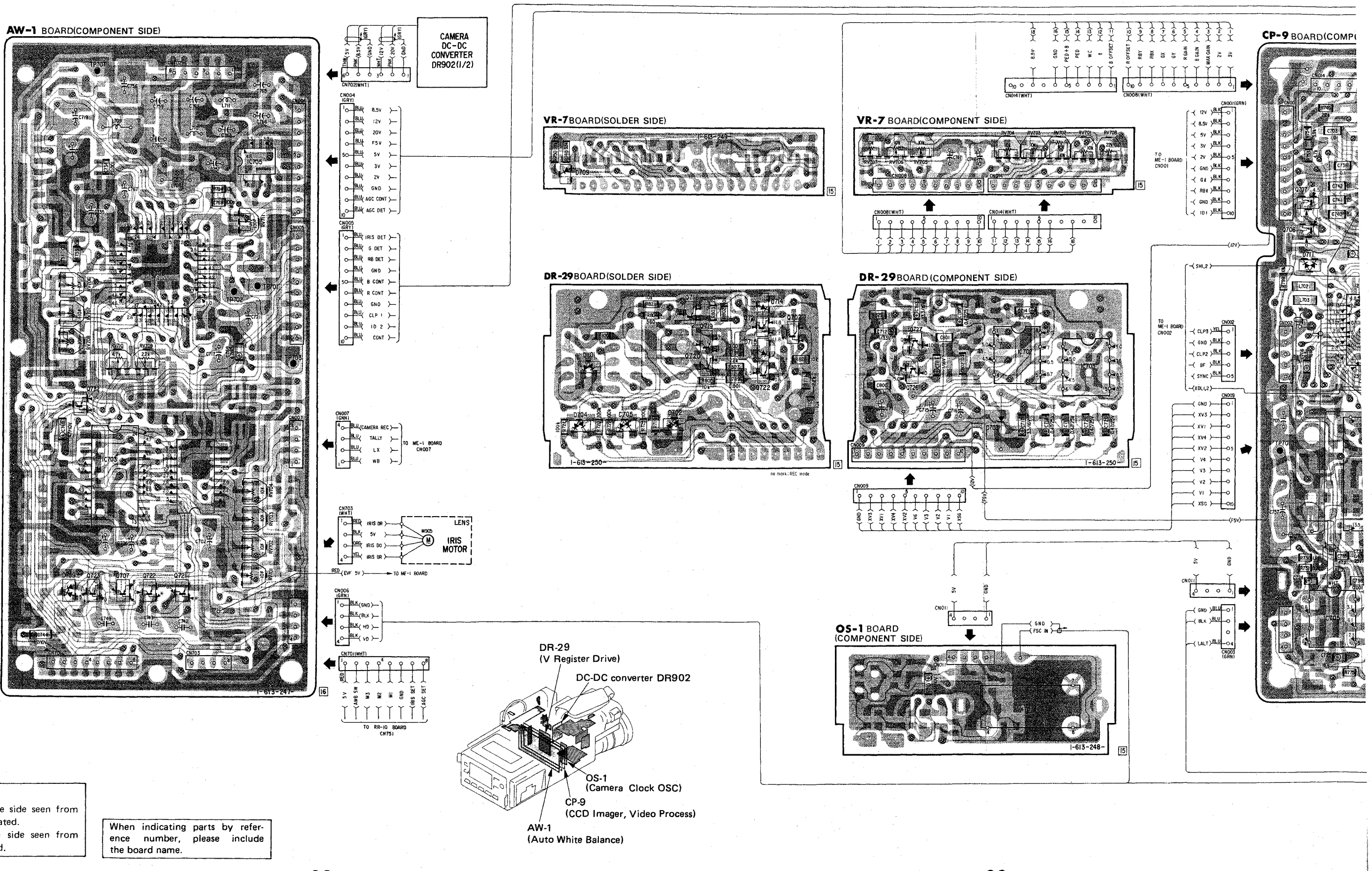
Pattern face side: (Solder Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the part face are indicated.

When indicating parts by reference number, please include the board name.

, VR-7 (VIDEO PROCESS), DR-29 (TIMING GENERATOR), AW-1 (AUTO WHITE BALANCE) PRINTED WIRING BOARDS

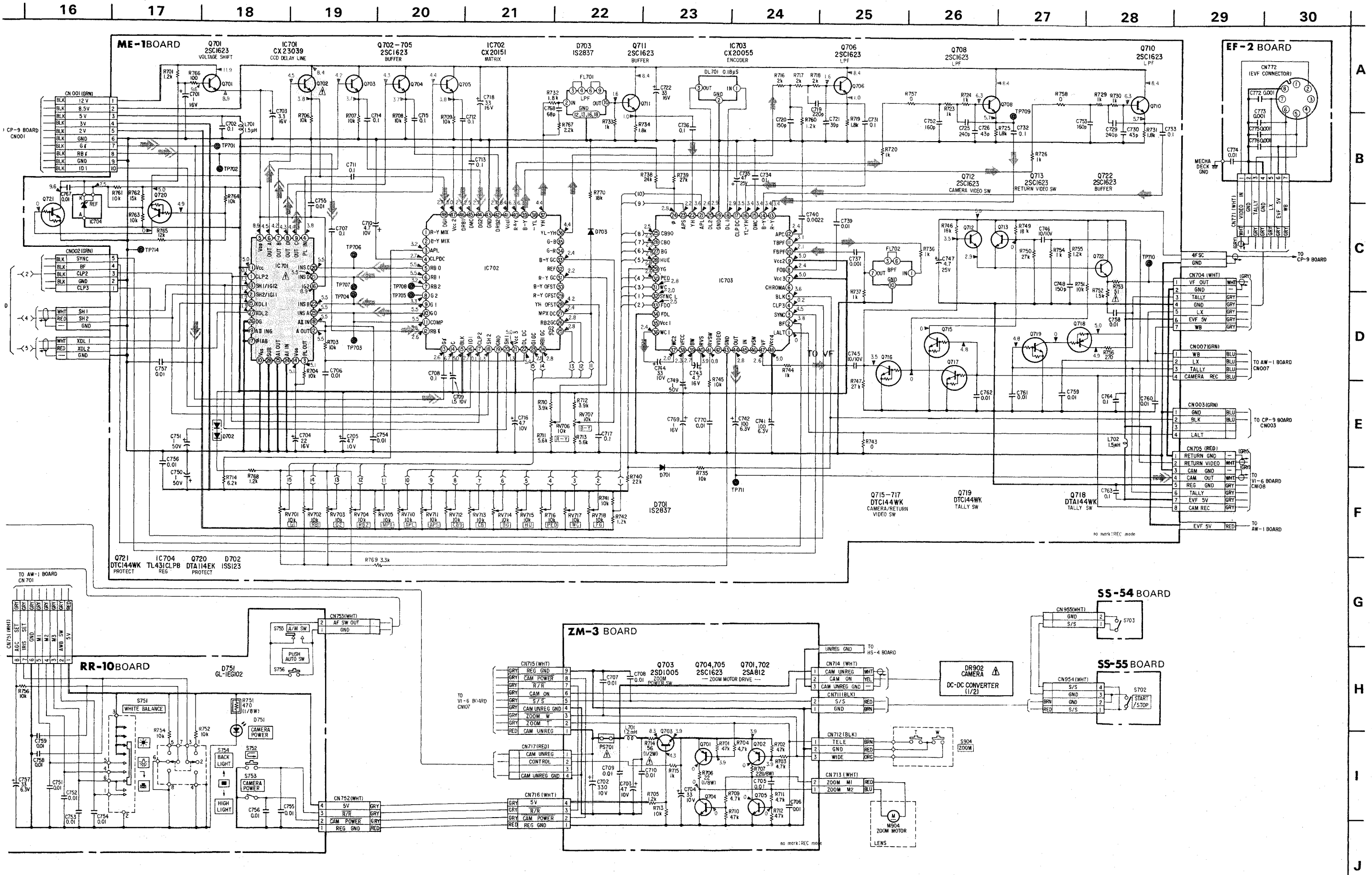
BOARD : 4000 series –

Q,IC	D	ADJ	TP
			707
714			
715			
IC705 716			
713			
730 711			
		RV711	
718			
712			
710			
IC706			
709		RV706	701
			702
		RV707	
733		RV708	
	708	RV709,RV710	703
732			
717			
	717		
	715		
IC701,IC703	716		
734		RV704	
708	706		
	702	RV703	
704 728		RV702	
729			
726	710	RV701	
725			
721,722,707,723,724	709		
	711		
Q,IC	D	ADJ	TP


AW-1 BOARD(COMPONENT SIDE)
CAMERA DC-DC CONVERTER DR902(1/2)
CN702(WHT)
CN004 (GRY)
8.5V
12V
20V
F5V
5V
3V
2V
GND
AGC CONT
AGC DET
CN005 (GRY)
IRIS DET
G DET
RB DET
GND
B CONT
R CONT
GND
CLP 1
ID 2
CONT
CN007 (GRN)
CAMERA REC
TALLY
LX
WB
TO ME-1 BOARD CN007
CN703 (WHT)
IRIS DR
5V
IRIS DO
IRIS BR
LENS
M905
IRIS MOTOR
EVF 5V
TO ME-1 BOARD
CN006 (GRN)
GND
BLK
HD
VD
CN701(WHT)
5V
AWB SW
M3
M2
M1
GND
IRIS SET
AGC SET
TO RR-10 BOARD CN751
1-613-247-
16
VR-7 BOARD(SOLDER SIDE)
1-613-249
15
VR-7 BOARD(COMPONENT SIDE)
CN008(WHT)
CN014(WHT)
8.5V
GND
PED+B
PED
WC
B
B OFFSET
R OFFSET
RBY
RBX
GX
GY
R GAIN
B GAIN
MAX GAIN
2V
3V
CN001(GRN)
12V
8.5V
5V
3V
2V
GND
G#
RB#
GND
ID1
TO ME-1 BOARD CN001
DR-29 BOARD(SOLDER SIDE)
1-613-250
DR-29 BOARD(COMPONENT SIDE)
1-613-250
no mark: REC mode
CN009
GND
XV3
XV1
XV4
XV2
V4
V3
V2
V1
XSG
(12V)
(F5V)
SHI,2
TO ME-1 BOARD CN002
CN002
CLP3
GND
CLP2
BF
SYNC
XDL1,2
CN011
5V
GND
GND
FSC IN
CN003 (GRN)
GND
BLK
LALT
OS-1 BOARD (COMPONENT SIDE)
1-613-248-
CP-9 BOARD(COMP
DR-29 (V Register Drive)
DC-DC converter DR902
OS-1 (Camera Clock OSC)
CP-9 (CCD Imager, Video Process)
AW-1 (Auto White Balance)

ace side: Parts on the pattern face side seen from
ide) the pattern face are indicated.
side: Parts on the parts face side seen from
ent Side) the part face are indicated.

When indicating parts by reference number, please include the board name.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A
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C
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I
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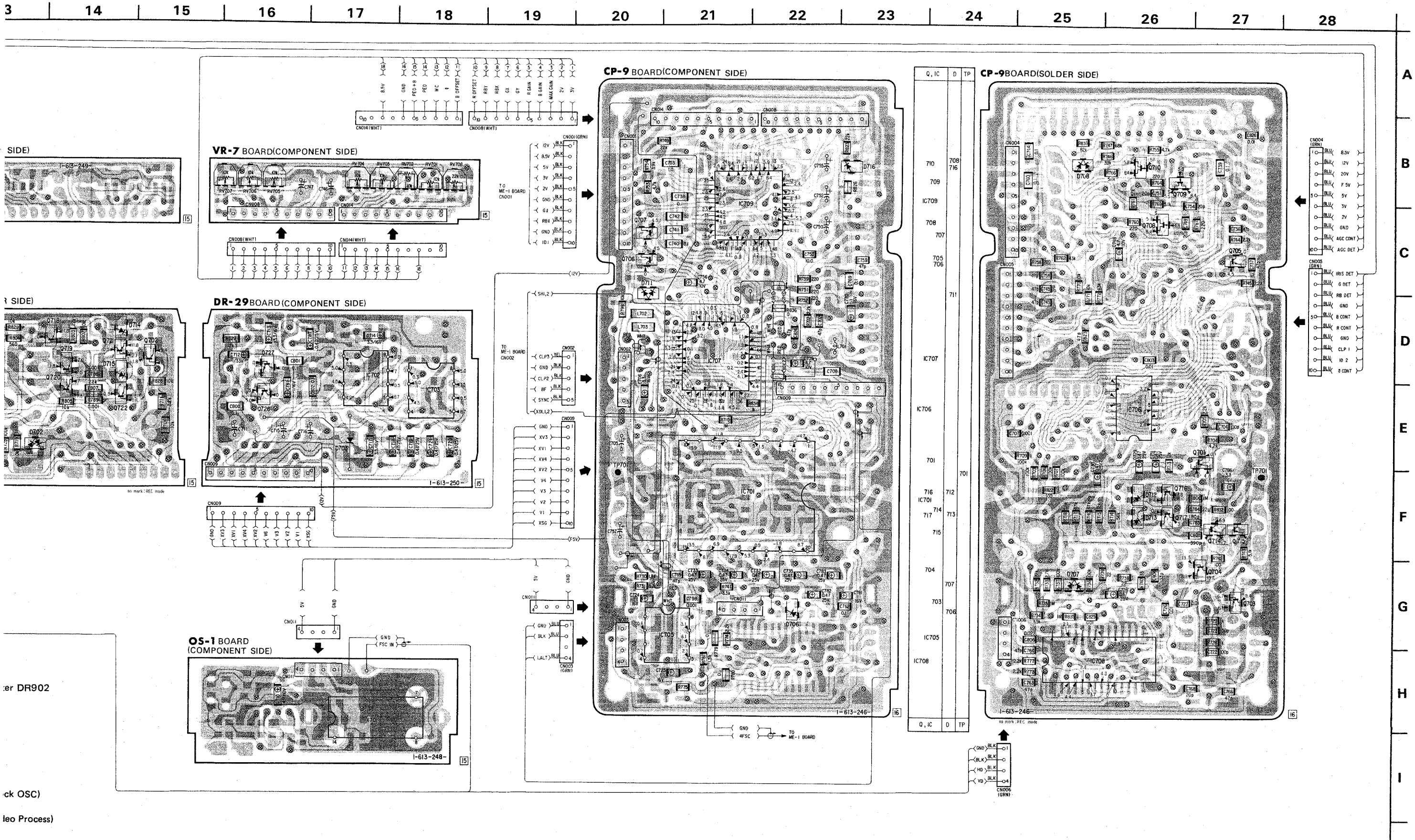
ME-1 BOARD
Q701 2SC1623 VOLTAGE SHIFT
IC701 CX23039 CCD DELAY LINE
Q702–705 2SC1623 BUFFER
IC702 CX20151 MATRIX
D703 1S2837
Q711 2SC1623 BUFFER
IC703 CX20055 ENCODER
Q706 2SC1623 LPF
Q708 2SC1623 LPF
Q710 2SC1623 LPF
EF-2 BOARD
CN772 (EVF CONNECTOR)
CN001 (GRN)
CP-9 BOARD CN001
CN002 (GRN)
Q712 2SC1623 CAMERA VIDEO SW
Q713 2SC1623 RETURN VIDEO SW
Q722 2SC1623 BUFFER
MECHA DECK GND
TO CP-9 BOARD
CN704 (WHT)
CN007 (GRN)
TO AW-1 BOARD CN007
CN003 (GRN)
TO CP-9 BOARD CN003
CN705 (RED)
TO VI-6 BOARD CN108
TO AW-1 BOARD
Q715–717 DTC144WK CAMERA/RETURN VIDEO SW
Q719 DTA144WK TALLY SW
Q718 DTA144WK TALLY SW
D701 1S2837
Q721 DTC144WK PROTECT
IC704 TL431CLPB REG
Q720 DTA114EK PROTECT
D702 1SS123
no mark : REC mode
TO VF
TO AW-1 BOARD CN701
RR-10 BOARD
D751 GL-1EG102
CN751 (WHT)
CN753 (WHT)
CN752 (WHT)
S751 WHITE BALANCE
S754 BACK LIGHT
S753 CAMERA POWER
HIGH LIGHT
CAMERA POWER
ZM-3 BOARD
Q703 2SD1005 ZOOM POWER SW
Q704,705 2SC1623
Q701,702 2SA812
ZOOM MOTOR DRIVE
CN715 (WHT)
CN717 (RED)
CN716 (WHT)
CN714 (WHT)
CN711 (BLK)
CN712 (BLK)
CN713 (WHT)
TO VI-6 BOARD CN107
TO HS-4 BOARD
DR902 CAMERA DC-DC CONVERTER (1/2)
S904 ZOOM
M904 ZOOM MOTOR
LENS
SS-54 BOARD
CN955 (WHT)
S703
SS-55 BOARD
CN954 (WHT)
S702 START/STOP
no mark : REC mode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SIDE)
1-613-249-
R SIDE)
VR-7 BOARD(COMPONENT SIDE)
CN008(WHT)
CN014(WHT)
TO ME-1 BOARD CN001
DR-29 BOARD(COMPONENT SIDE)
1-613-250-
CN009
TO ME-1 BOARD CN002
no mark : REC mode
OS-1 BOARD (COMPONENT SIDE)
CN011
GND
FSC IN
1-613-248-
CP-9 BOARD(COMPONENT SIDE)
1-613-246-
GND
4FSC
TO ME-1 BOARD
Q, IC
D
TP
CP-9 BOARD(SOLDER SIDE)
1-613-246-
no mark : REC mode
CN004 (GRN)
CN005 (GRN)
CN006 (GRN)
ter DR902
ck OSC)
deo Process)

CP-9 (CCD IMAGER, VIDEO PROCESS), OS-1 (OSC), VR-7 (VIDEO PROCESS), DR-29 (TIMING GENERATOR), AW-1 (AUTO WHITE BALANCE) SCHEMATIC DIAGRAM

– Ref. No. CP-9, OS-1, VR-7, DR-29 BOARD : 2000 series, AW-1 BOARD : 4000 series –

Note:

- Caution when replacing tip parts.
  New parts must be attached after removal of tip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the head.
- All resistors are in ohms, 1/10W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted.
  50V or less are not indicated except for electrolytic capacitors.
- All variable and semi fixed resistors have characteristic curve B, unless otherwise noted.
- ☐ : panel designation.
- ——— : B+ bus.
- ☐ : adjustment for repair.
- Voltage and waveform measuring conditions:
  (1) Sample object: Pattern box color bars.
  (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).

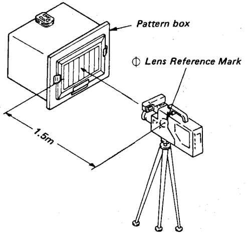
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

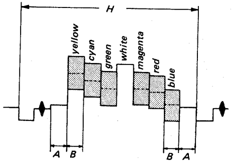
When indicating parts by reference number, please include the board name.

- Signal path
  ➡ : REC Y & CHROMA SIGNAL

1. Connection


Pattern box
Φ Lens Reference Mark
1.5m

2. Adjust the zooming of camera and the tripod so that the output waveform of Fig. a and the picture of Fig. b can be obtain.


H
yellow
cyan
green
white
magenta
red
blue
A
B
B
A

A = B

Fig. a Camera output waveform of TP711 on ME-1 board

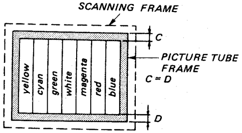
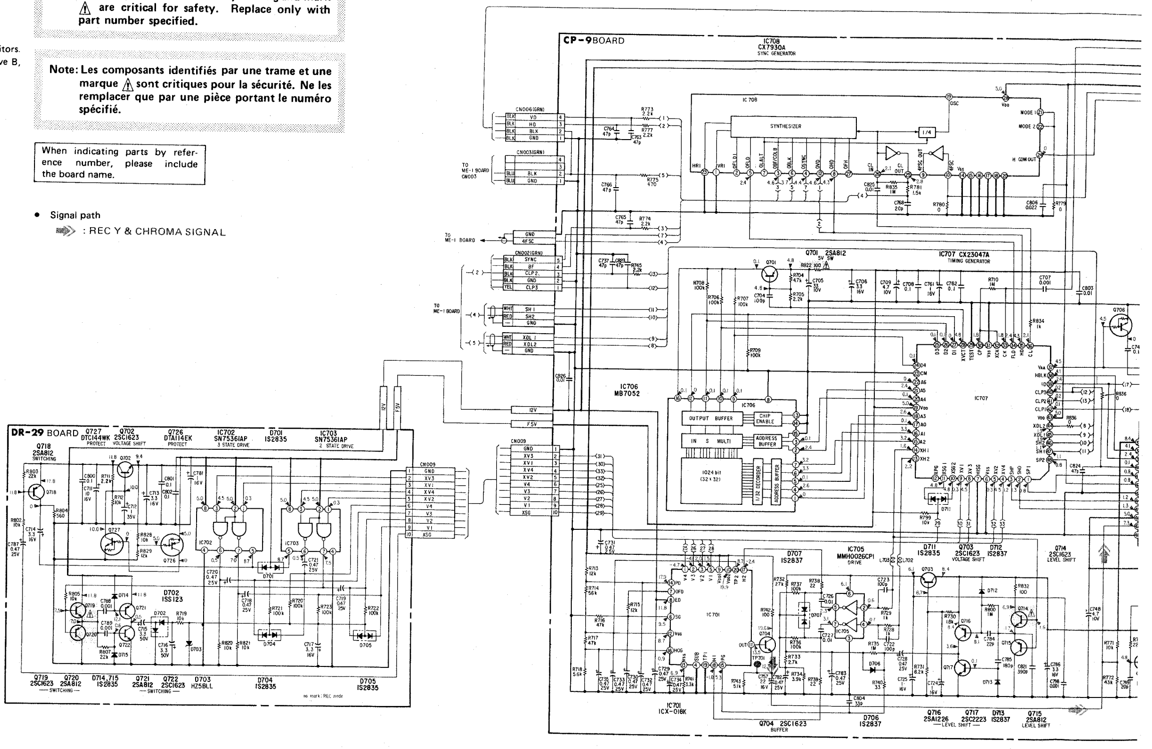
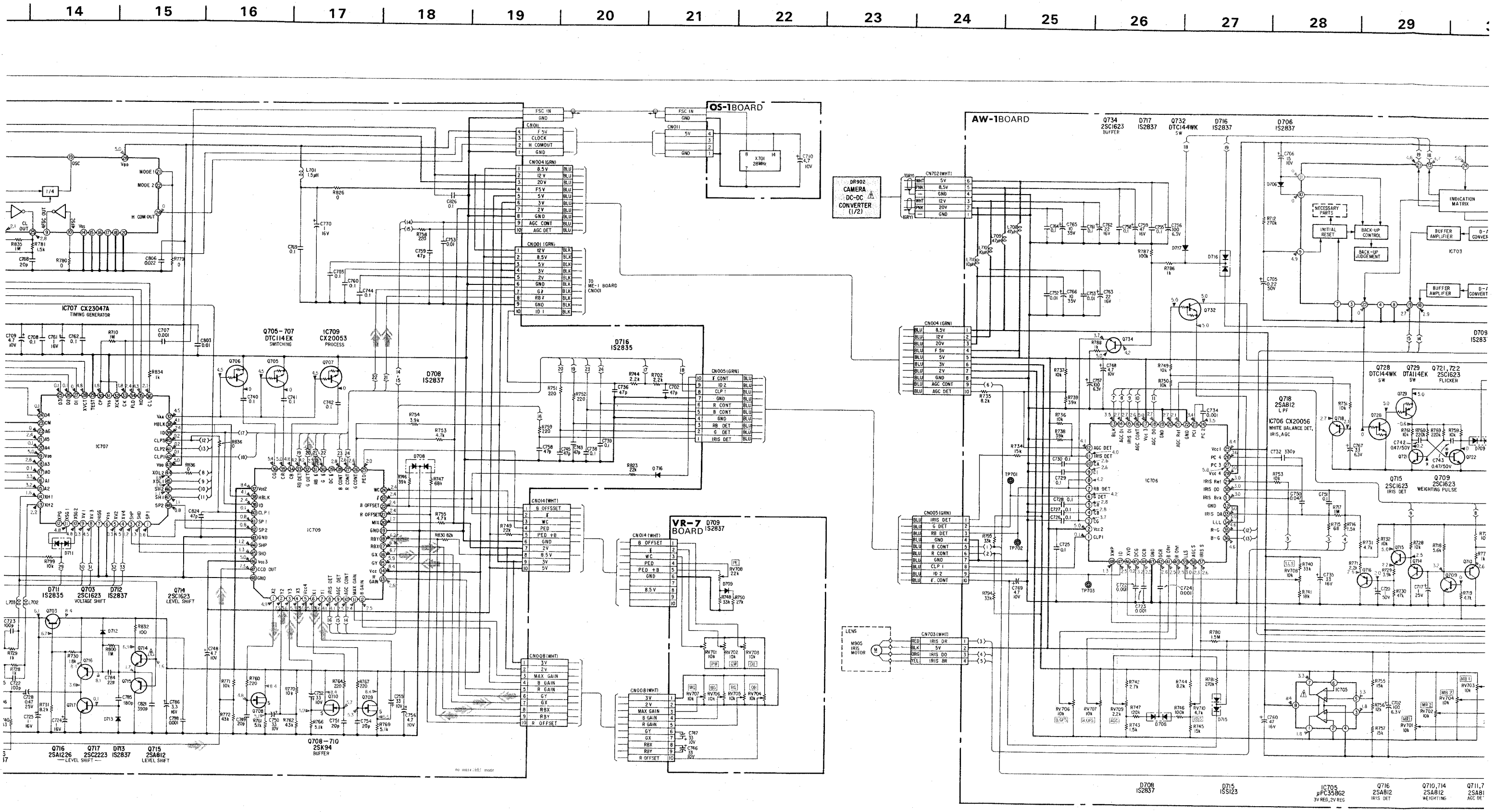

SCANNING FRAME
C
PICTURE TUBE FRAME
C = D
D
yellow
cyan
green
white
magenta
red
blue

Fig. b Picture of TV monitor screen


CP-9 BOARD
IC708 CX7930A SYNC GENERATOR
SYNTHESIZER
1/4
CN006(GRN)
CN003(GRN)
CN002(GRN)
TO ME-1 BOARD CN003
TO ME-1 BOARD
Q701 2SA812 5V SW
IC707 CX23047A TIMING GENERATOR
IC706 MB7052
OUTPUT BUFFER
CHIP ENABLE
IN S MULTI
ADDRESS BUFFER
1024 bit (32×32)
1/32 DECORDER
ADDRESS BUFFER
CN009
12V
F5V
D707 1S2837
IC705 MMH0026CPI DRIVE
D711 1S2835
Q703 2SC1623 VOLTAGE SHIFT
D712 1S2837
Q714 2SC1623 LEVEL SHIFT
IC701 ICX-018K
Q704 2SC1623 BUFFER
D706 1S2837
Q716 2SA1226
Q717 2SC2223
D713 1S2837
Q715 2SA812
LEVEL SHIFT
DR-29 BOARD
Q718 2SA812 SWITCHING
Q727 DTC144WK PROTECT
Q702 2SC1623 VOLTAGE SHIFT
Q726 DTA114EK PROTECT
IC702 SN75361AP 3 STATE DRIVE
D701 1S2835
IC703 SN75361AP 2 STATE DRIVE
D702 1SS123
Q719 2SC1623
Q720 2SA812
SWITCHING
D714,715 1S2835
Q721 2SA812
Q722 2SC1623
SWITCHING
D703 HZ5BLL
D704 1S2835
D705 1S2835
no mark : REC mode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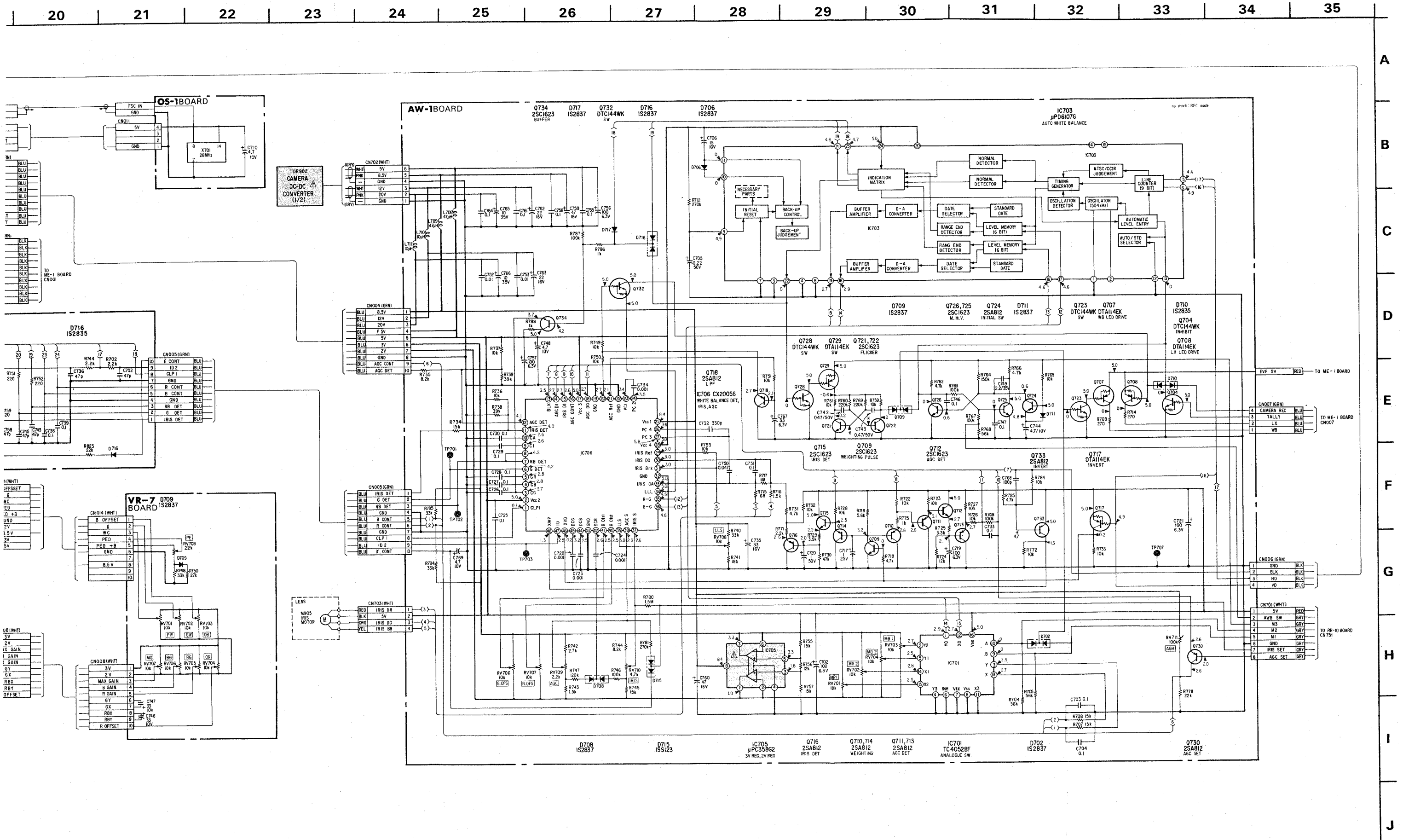
OS-1 BOARD
X701 28MHz
C710 4.7 10V
CN011
CN004 (GRN)
CN001 (GRN)
TO ME-1 BOARD CN001
IC707 CX23047A
TIMING GENERATOR
Q705-707 DTC114EK
SWITCHING
IC709 CX20053
PROCESS
D716 1S2835
D708 1S2837
CN005 (GRN)
CN014 (WHT)
CN008 (WHT)
VR-7 BOARD
D709 1S2837
D711 1S2835
Q703 2SC1623
VOLTAGE SHIFT
D712 1S2837
Q714 2SC1623
LEVEL SHIFT
Q716 2SA1226
Q717 2SC2223
LEVEL SHIFT
D713 1S2837
Q715 2SA812
LEVEL SHIFT
Q708-710 2SK94
BUFFER
DR902 CAMERA DC-DC CONVERTER (1/2)
CN702 (WHT)
AW-1 BOARD
Q734 2SC1623 BUFFER
D717 1S2837
Q732 DTC144WK SW
D716 1S2837
D706 1S2837
INDICATION MATRIX
NECESSARY PARTS
INITIAL RESET
BACK-UP CONTROL
BACK-UP JUDGEMENT
BUFFER AMPLIFIER
IC703
Q718 2SA812 L.P.F
IC706 CX20056
WHITE BALANCE DET, IRIS, AGC
Q728 DTC144WK SW
Q729 DTA114EK SW
Q721,722 2SC1623 FLICKER
Q715 2SC1623 IRIS DET
Q709 2SC1623 WEIGHTING PULSE
TP701
TP702
TP703
LENS
M905 IRIS MOTOR
CN703 (WHT)
IC705
D708 1S2837
D715 1SS123
IC705 μPC358G2
3V REG, 2V REG
Q716 2SA812 IRIS DET
Q710,714 2SA812 WEIGHTING
Q711,7 2SA81 AGC DET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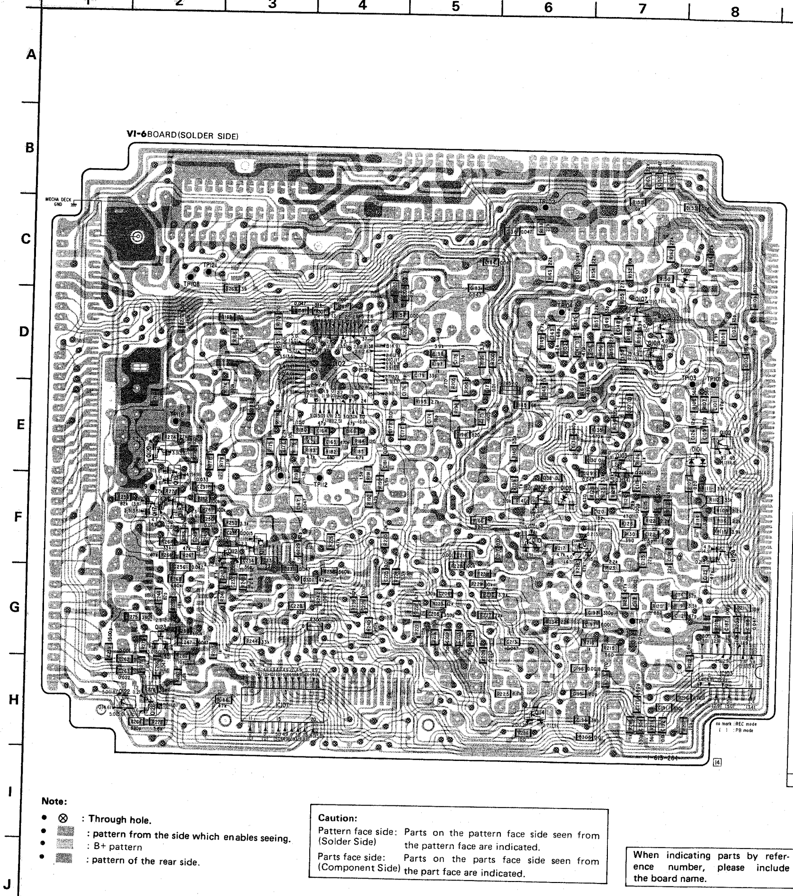
I
J
OS-1 BOARD
X701 28MHz
C710 4.7 10V
DR902 CAMERA DC-DC CONVERTER (1/2)
TO ME-1 BOARD CN001
D716 1S2835
CN005 (GRN)
VR-7 BOARD
D709 1S2837
CN014 (WHT)
CN008 (WHT)
LENS
M905 IRIS MOTOR
AW-1 BOARD
CN702 (WHT)
CN004 (GRN)
CN005 (GRN)
CN703 (WHT)
Q734 2SC1623 BUFFER
D717 1S2837
Q732 DTC144WK SW
D716 1S2837
D706 1S2837
IC703 μPD6107G AUTO WHITE BALANCE
INDICATION MATRIX
NECESSARY PARTS
INITIAL RESET
BACK-UP CONTROL
BACK-UP JUDGEMENT
BUFFER AMPLIFIER
D-A CONVERTER
DATE SELECTOR
STANDARD DATE
RANGE END DETECTOR
LEVEL MEMORY (6 BIT)
NORMAL DETECTOR
TIMING GENERATOR
NTSC/CCIR JUDGEMENT
LINE COUNTER (9 BIT)
OSCILLATION DETECTOR
OSCILLATOR (504kHz)
AUTOMATIC LEVEL ENTRY
AUTO/STD SELECTOR
IC706
IC706 CX20056 WHITE BALANCE DET, IRIS, AGC
Q718 2SA812 L.P.F
D709 1S2837
Q726,725 2SC1623 M.M.V.
Q724 2SA812 INITIAL SW
D711 1S2837
Q723 DTC144WK SW
Q707 DTA114EK WB LED DRIVE
D710 1S2835
Q704 DTC144WK INHIBIT
Q708 DTA114EK LX LED DRIVE
Q728 DTC144WK SW
Q729 DTA114EK SW
Q721,722 2SC1623 FLICKER
Q715 2SC1623 IRIS DET
Q709 2SC1623 WEIGHTING PULSE
Q712 2SC1623 AGC DET
Q733 2SA812 INVERT
Q717 DTA114EK INVERT
CN007 (GRN)
TO ME-1 BOARD CN007
EVF 5V
TO ME-1 BOARD
CN006 (GRN)
CN701 (WHT)
TO RR-10 BOARD CN751
IC705
IC701
D708 1S2837
D715 1SS123
IC705 μPC358G2 3V REG, 2V REG
Q716 2SA812 IRIS DET
Q710,714 2SA812 WEIGHTING
Q711,713 2SA812 AGC DET
IC701 TC4052BF ANALOGUE SW
D702 1S2837
Q730 2SA812 AGC SET
TP701
TP702
TP703
TP707

4-4. VI-6 (Y & CHROMA SIGNAL PROCESS, PB PROCESS), FU-26 (FUSE), HS-4 (TAPE SENSOR, SWITCH), FE-2 (FLYING ERASE), ED-12 (SWITCH) PRINTED WIRING BOARD

– Ref. No. FU-26 BOARD : 5000 series, HS-4 BOARD : 6000 series, VI-6, ED-12 BOARD : 7000 series, FE-2 BOARD : 8000 series –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A
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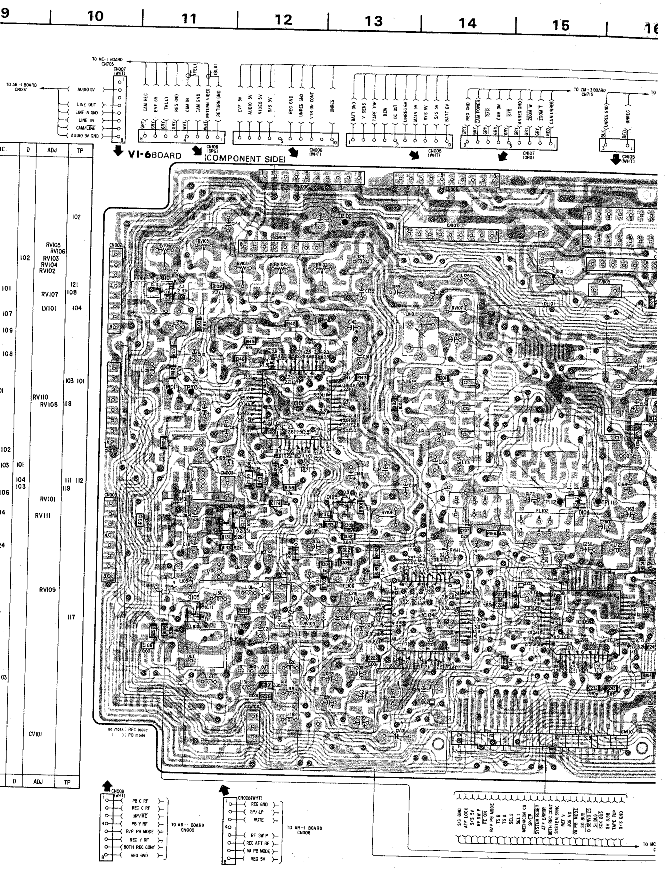
C
D
E
F
G
H
I
J
VI-6BOARD(SOLDER SIDE)
MECHA DECK GND
IC107
IC103
TP108
TP118
TP112
no mark : REC mode
( ) : PB mode
1-615-284-

Q, IC	D	ADJ	TP
			102
	102	RV105 RV106 RV103 RV104 RV102	
			121
101		RV107	108
		LV101	104
107			
109			
108			
IC102			
			103 101
IC101			
		RV110	
		RV108	118
102			
120 103	101		
	104		111 112
119	103		119
106			
125		RV101	
104			
		RV111	
117, 118			
110, 111			
124			
113			
112			
IC106			
		RV109	
IC105			
IC104			
105			
			117
123			
IC103			
IC107			
122, 121			
114		CV101	
Q, IC	D	ADJ	TP


9
10
11
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15
16
TO ME-1 BOARD CN705
TO AR-1 BOARD CN007
CN007 (WHT)
AUDIO 5V
LINE OUT
LINE IN GND
LINE IN
CAM/LINE
AUDIO 5V GND
CAM REC
EVF 5V
TALLY
REG GND
CAM IN
CAM GND
RETURN VIDEO
RETURN GND
(YEL)
(BLK)
GRY
WHT
CN108 (ORG)
EVF 5V
AUDIO 5V
VIDEO 5V
S/S 5V
REG GND
UNREG GND
VTR ON CONT
UNREG
CN006 (WHT)
BATT GND
V SENS
TAPE TOP
DEW
DC OUT
UNREG 6V
MAIN 5V
SYS 5V
S/S 5V
BATT 6V
CN005 (WHT)
REG GND
CAM POWER
R/R
CAM ON
S/S
UNREG GND
ZOOM W
ZOOM T
CAM UNREG
RED
CN107 (ORG)
TO ZM-3 BOARD CN715
UNREG GND
UNREG
BLK
RED
CN105 (WHT)
VI-6BOARD
(COMPONENT SIDE)
no mark : REC mode
( ) : PB mode
CN009 (WHT)
PB C RF
REC C RF
MP/ME
PB Y RF
R/P PB MODE
REC Y RF
BOTH REC CONT
REG GND
TO AR-1 BOARD CN009
CN008 (WHT)
REG GND
SP/LP
MUTE
RF SW P
REC AFT RF
VA PB MODE
REG 5V
TO AR-1 BOARD CN008
S/S GND
ATF LOCK
S/S 5V
RF SW P
FE ON
R/P PB MODE
TS B
TS A
SEL 2
SEL 1
MECHACON CS
SP/LP
SYSTEM RESET
ATF ERROR
BOTH REC CONT
SYSTEM SYNC
REF V
JOG VD
VA PB MODE
SO BUS
D SERVO CS
SI BUS
SCK BUS
SV 3.58
TAPE TOP
S/S GND
CN110
TO MC

Note:

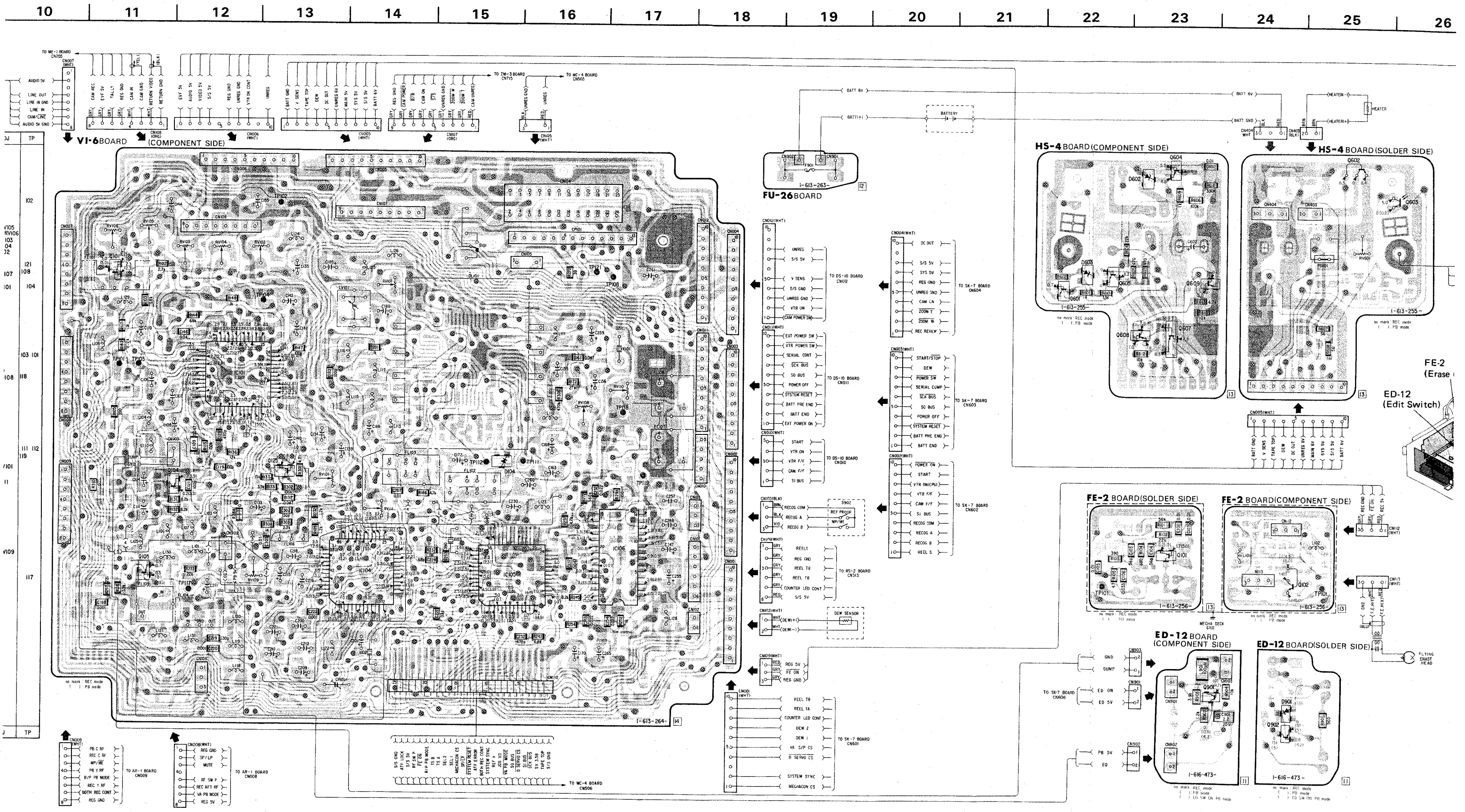
- ⊗ : Through hole.
- ▨ : pattern from the side which enables seeing.
- ░ : B+ pattern
- ▩ : pattern of the rear side.

Caution:

Pattern face side: (Solder Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the part face are indicated.

When indicating parts by reference number, please include the board name.

SWITCH) PRINTED WIRING BOARD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21
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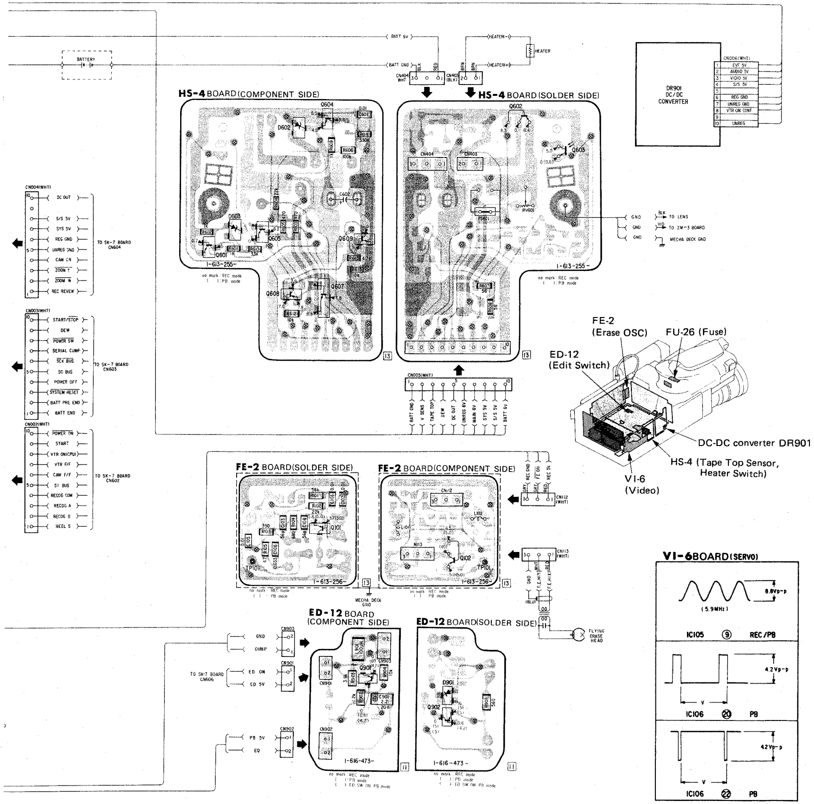
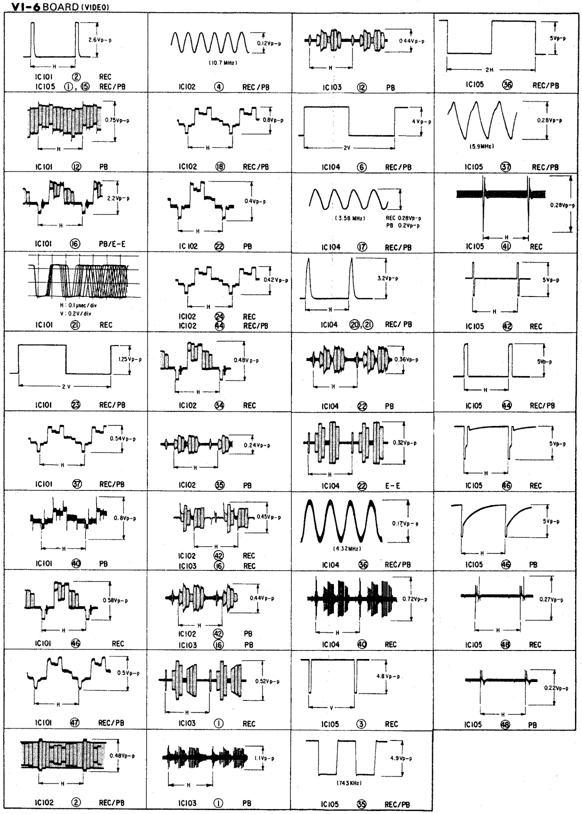
25
26
VI-6 BOARD
(COMPONENT SIDE)
1-613-264-
FU-26 BOARD
1-613-263-
HS-4 BOARD (COMPONENT SIDE)
HS-4 BOARD (SOLDER SIDE)
1-613-255-
FE-2 BOARD (SOLDER SIDE)
FE-2 BOARD (COMPONENT SIDE)
1-613-256-
ED-12 BOARD (COMPONENT SIDE)
ED-12 BOARD (SOLDER SIDE)
1-616-473-
FE-2 (Erase
ED-12 (Edit Switch)
BATTERY
HEATER
DEW SENSOR
FLYING ERASE HEAD
TO MC-4 BOARD CN506
TO SK-7 BOARD CN601
TO SK-7 BOARD CN602
TO SK-7 BOARD CN603
TO SK-7 BOARD CN604
TO DS-10 BOARD CN010
TO DS-10 BOARD CN011
TO DS-10 BOARD CN012
TO RS-2 BOARD CN513
TO AR-1 BOARD CN009
TO AR-1 BOARD CN008
TO ZM-3 BOARD CN715
TO MC-4 BOARD CN503
TO ME-1 BOARD CN705
TO SK-7 BOARD CN606
no mark : REC mode
( ) : PB mode

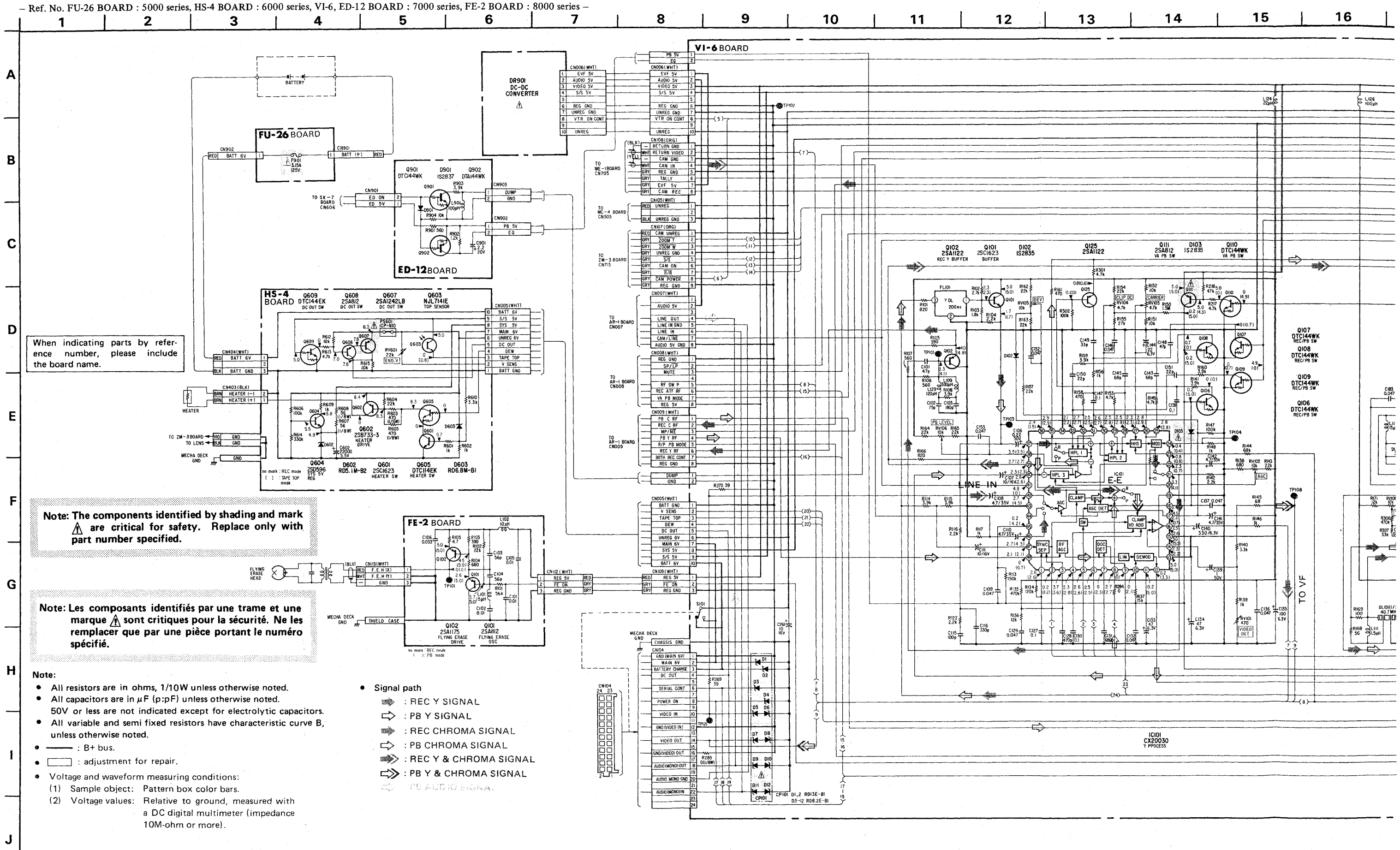

BATT 6V
BATT GND
BATTERY
HEATER
CN404 WHT
CN403 (BLK)
HS-4 BOARD (COMPONENT SIDE)
HS-4 BOARD (SOLDER SIDE)
Q604
Q602
D602
Q603
Q605
Q609
Q601
Q608
Q607
D603
CN404
CN403
RV601
PS601
1-613-255-
no mark : REC mode
( ) : PB mode
DR901
DC/DC
CONVERTER
CN006 (WHT)
EVF 5V
AUDIO 5V
VIDIO 5V
S/S 5V
REG GND
UNREG GND
VTR ON CONT
UNREG
GND
TO LENS
TO ZM-3 BOARD
MECHA DECK GND
CN004 (WHT)
DC OUT
S/S 5V
SYS 5V
REG GND
UNREG GND
CAM ON
ZOOM T
ZOOM W
REC REVIEW
TO SK-7 BOARD CN604
CN003 (WHT)
START/STOP
DEW
POWER SW
SERIAL CUMP
SCK BUS
SO BUS
POWER OFF
SYSTEM RESET
BATT PRE END
BATT END
TO SK-7 BOARD CN603
CN002 (WHT)
POWER ON
START
VTR ON (CPU)
VTR F/F
CAM F/F
SI BUS
RECOG COM
RECOG A
RECOG B
REEL S
TO SK-7 BOARD CN602
CN005 (WHT)
BATT GND
V SENS
TAPE TOP
DEW
DC OUT
UNREG 6V
MAIN 5V
SYS 5V
S/S 5V
BATT 6V
FE-2
(Erase OSC)
FU-26 (Fuse)
ED-12
(Edit Switch)
DC-DC converter DR901
HS-4 (Tape Top Sensor,
Heater Switch)
VI-6
(Video)
FE-2 BOARD (SOLDER SIDE)
FE-2 BOARD (COMPONENT SIDE)
Q101
Q102
TP101
CN112 (WHT)
CN113 (WHT)
1-613-256-
MECHA DECK GND
FLYING ERASE HEAD
ED-12 BOARD (COMPONENT SIDE)
ED-12 BOARD (SOLDER SIDE)
CN903
CN901
CN902
D901
Q901
Q902
GND
DUMP
ED ON
ED 5V
PB 5V
EQ
TO SK-7 BOARD CN606
1-616-473-
no mark : REC mode
( ) : PB mode
< > : ED SW ON PB mode
VI-6 BOARD (SERVO)
(5.9MHz)
8.8Vp-p
IC105 ⑨ REC/PB
4.2Vp-p
V
IC106 ⑳ PB
4.2Vp-p
V
IC106 ㉒ PB

VI-6 BOARD (VIDEO)



VI-6 (Y & CHROMA SIGNAL PROCESS, PB PROCESS), FU-26 (FUSE), HS-4 (TAPE SENSOR, SWITCH), FE-2 (FLYING ERASE), ED-12 (SWITCH) SCHEMATIC DIAGRAM

– Ref. No. FU-26 BOARD : 5000 series, HS-4 BOARD : 6000 series, VI-6, ED-12 BOARD : 7000 series, FE-2 BOARD : 8000 series –


1
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13
14
15
16
A
B
C
D
E
F
G
H
I
J
BATTERY
DR901
DC-DC CONVERTER
FU-26 BOARD
F901 3.15A 125V
CN902
CN901
BATT 6V
BATT (+)
ED-12 BOARD
Q901 DTC144WK
D901 IS2837
Q902 DTA144WK
TO SK-7 BOARD CN606
ED ON
ED 5V
DUMP
PB 5V
EQ
HS-4 BOARD
Q609 DTC144EK DC OUT SW
Q608 2SA812 DC OUT SW
Q607 2SA1242LB DC OUT SW
Q603 NJL7141E TOP SENSOR
Q604 2SD596 5YS 5V REG
D602 RD5.1M-B2
Q601 2SC1623 HEATER SW
Q605 DTC114EK HEATER SW
D603 RD6.8M-B1
Q602 2SB733-3 HEATER DRIVE
HEATER
TO ZM-3 BOARD
TO LENS
MECHA DECK GND
no mark : REC mode
( ) : TAPE TOP mode
FE-2 BOARD
FLYING ERASE HEAD
Q102 2SA1175 FLYING ERASE DRIVE
Q101 2SA812 FLYING ERASE OSC
no mark : REC mode
( ) : PB mode
MECHA DECK GND
SHIELD CASE
VI-6 BOARD
TO ME-1 BOARD CN705
TO MC-4 BOARD CN503
TO ZM-3 BOARD CN715
TO AR-1 BOARD CN007
TO AR-1 BOARD CN008
TO AR-1 BOARD CN009
MECHA DECK GND
CHASSIS GND
CN104
S101
Q102 2SA1122 REC Y BUFFER
Q101 2SC1623 BUFFER
D102 IS2835
Q125 2SA1122
Q111 2SA812 VA PB SW
D103 IS2835
Q110 DTC144WK VA PB SW
Q107 DTC144WK REC/PB SW
Q108 DTC144WK REC/PB SW
Q109 DTC144WK REC/PB SW
Q106 DTC144WK REC/PB SW
FL101 Y DL 200ns
LINE IN
E-E
IC101
IC101 CX20030 Y PROCESS
TP101
TP102
TP103
TP104
TP108
TO VF
D1, 2 RD13E-B1
D3–12 RD8.2E-B1

When indicating parts by reference number, please include the board name.

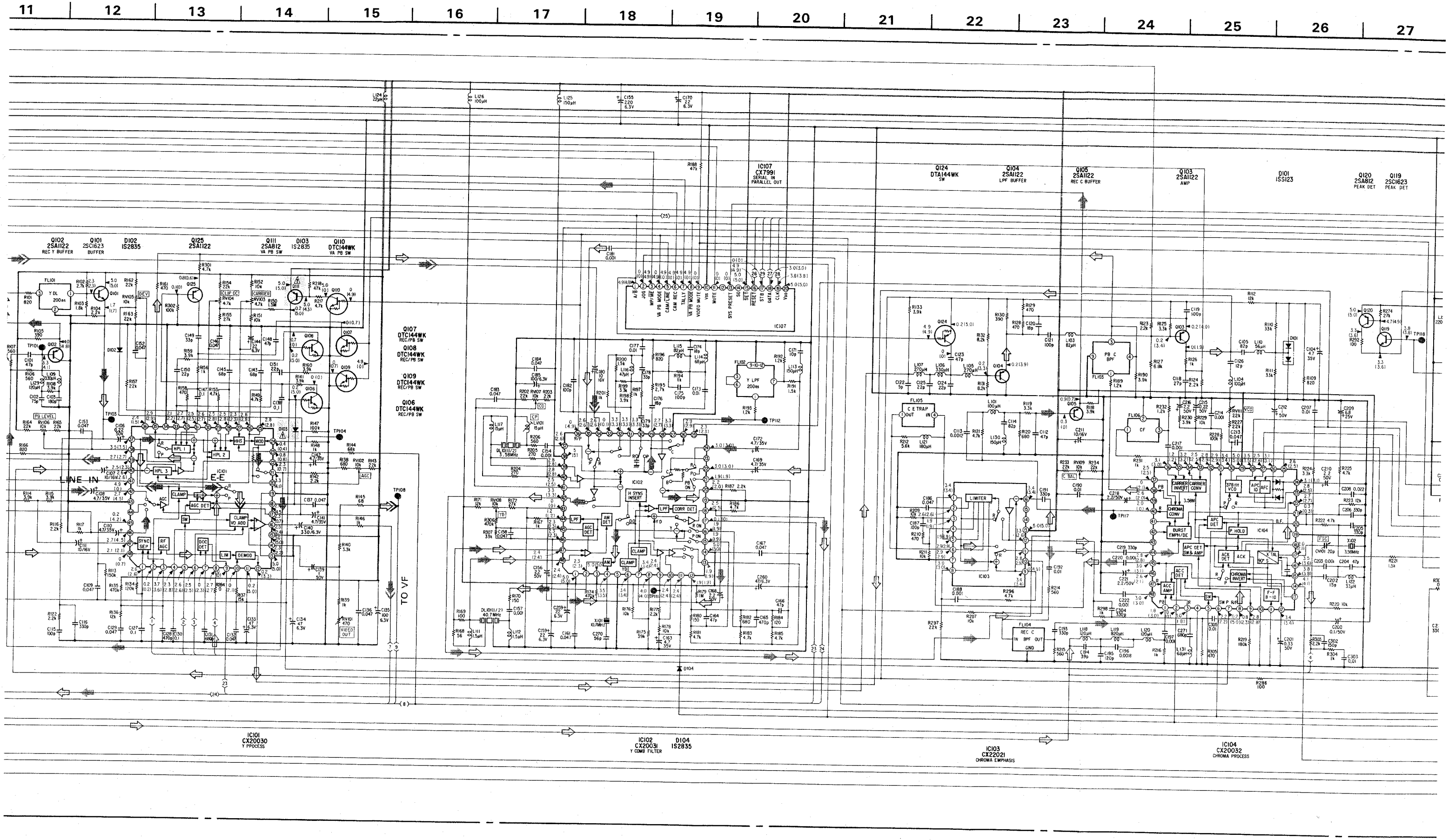
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note:

- All resistors are in ohms, 1/10W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted. 50V or less are not indicated except for electrolytic capacitors.
- All variable and semi fixed resistors have characteristic curve B, unless otherwise noted.
- ——— : B+ bus.
- ▭ : adjustment for repair.
- Voltage and waveform measuring conditions:
  - (1) Sample object: Pattern box color bars.
  - (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).

- Signal path
  - ➡ : REC Y SIGNAL
  - ⇨ : PB Y SIGNAL
  - ➡ : REC CHROMA SIGNAL
  - ⇨ : PB CHROMA SIGNAL
  - ➡ : REC Y & CHROMA SIGNAL
  - ⇨ : PB Y & CHROMA SIGNAL
  - ⇨ : PB AUDIO SIGNAL


11
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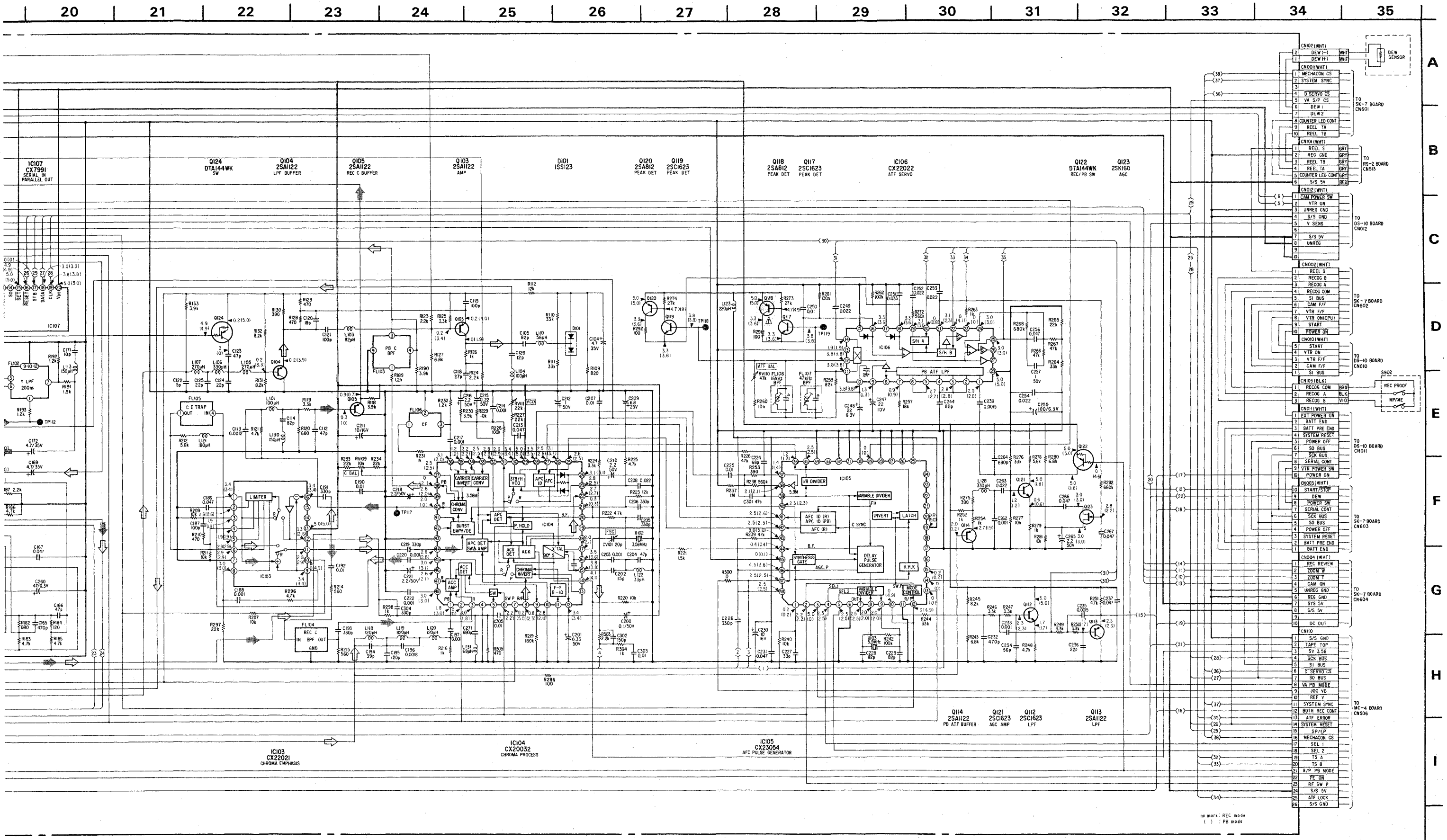
21
22
23
24
25
26
27
Q102 2SA1122 REC Y BUFFER
Q101 2SC1623 BUFFER
D102 1S2835
Q125 2SA1122
Q111 2SA812 VA PB SW
D103 1S2835
Q110 DTC144WK VA PB SW
Q107 DTC144WK REC/PB SW
Q108 DTC144WK REC/PB SW
Q109 DTC144WK REC/PB SW
Q106 DTC144WK REC/PB SW
IC107 CX7991 SERIAL IN PARALLEL OUT
Q124 DTA144WK SW
Q104 2SA1122 LPF BUFFER
Q105 2SA1122 REC C BUFFER
Q103 2SA1122 AMP
D101 1SS123
Q120 2SA812 PEAK DET
Q119 2SC1623 PEAK DET
LINE IN
E-E
TO VF
IC101
IC102
IC103
IC104
IC101 CX20030 Y PROCESS
IC102 CX20031 Y COMB FILTER
D104 1S2835
IC103 CX22021 CHROMA EMPHASIS
IC104 CX20032 CHROMA PROCESS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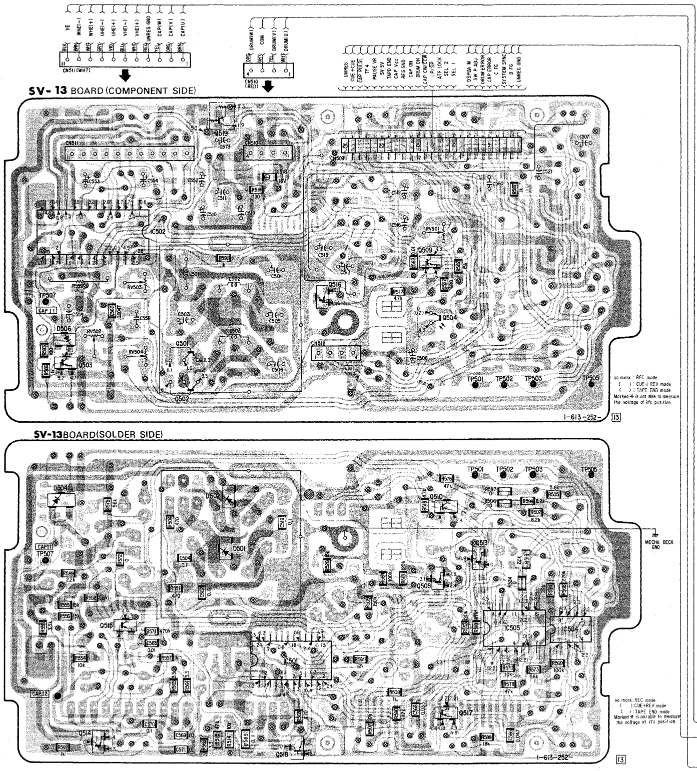
24
25
26
27
28
29
30
31
32
33
34
35
A
B
C
D
E
F
G
H
I
J
IC107
CX7991
SERIAL IN
PARALLEL OUT
Q124
DTA144WK
SW
Q104
2SA1122
LPF BUFFER
Q105
2SA1122
REC C BUFFER
Q103
2SA1122
AMP
D101
1SS123
Q120
2SA812
PEAK DET
Q119
2SC1623
PEAK DET
Q118
2SA812
PEAK DET
Q117
2SC1623
PEAK DET
IC106
CX22022
ATF SERVO
Q122
DTA144WK
REC/PB SW
Q123
2SK160
AGC
Q114
2SA1122
PB ATF BUFFER
Q121
2SC1623
AGC AMP
Q112
2SC1623
LPF
Q113
2SA1122
LPF
IC103
CX22021
CHROMA EMPHASIS
IC104
CX20032
CHROMA PROCESS
IC105
CX23054
AFC PULSE GENERATOR
CN102 (WHT)
2 DEW (−) WHT
1 DEW (+) WHT
DEW SENSOR
CN001 (WHT)
1 MECHACON CS
2 SYSTEM SYNC
3
4 D SERVO CS
5 VA S/P CS
6 DEW 1
7 DEW 2
8 COUNTER LED CONT
9 REEL TA
10 REEL TB
TO SK-7 BOARD CN601
CN101 (WHT)
1 REEL S GRY
2 REG GND GRY
3 REEL TB GRY
4 REEL TA GRY
5 COUNTER LED CONT GRY
6 S/S 5V RED
TO RS-2 BOARD CN513
CN012 (WHT)
1 CAM POWER SW
2 VTR ON
3 UNREG GND
4 S/S GND
5 V SENS
6
7 S/S 5V
8 UNREG
9
10
TO DS-10 BOARD CN012
CN002 (WHT)
1 REEL S
2 RECOG B
3 RECOG A
4 RECOG COM
5 SI BUS
6 CAM F/F
7 VTR F/F
8 VTR ON (CPU)
9 START
10 POWER ON
TO SK-7 BOARD CN602
CN010 (WHT)
5 START
4 VTR ON
3 VTR F/F
2 CAM F/F
1 SI BUS
TO DS-10 BOARD CN010
CN103 (BLK)
1 RECOG COM BRN
2 RECOG A BLK
3 RECOG B VIO
S902
REC PROOF
MP/ME
CN011 (WHT)
1 EXT POWER ON
2 BATT END
3 BATT PRE END
4 SYSTEM RESET
5 POWER OFF
6 SO BUS
7 SCK BUS
8 SERIAL CONT
9 VTR POWER SW
10 POWER ON
TO DS-10 BOARD CN011
CN003 (WHT)
10 START/STOP
9 DEW
8 POWER SW
7 SERIAL CONT
6 SCK BUS
5 SO BUS
4 POWER OFF
3 SYSTEM RESET
2 BATT PRE END
1 BATT END
TO SK-7 BOARD CN603
CN004 (WHT)
1 REC REVIEW
2 ZOOM W
3 ZOOM T
4 CAM ON
5 UNREG GND
6 REG GND
7 SYS 5V
8 S/S 5V
9
10 DC OUT
TO SK-7 BOARD CN604
CN110
1 S/S GND
2 TAPE TOP
3 SV 3.58
4 SCK BUS
5 SI BUS
6 D SERVO CS
7 SO BUS
8 VA PB MODE
9 JOG VD
10 REF V
11 SYSTEM SYNC
12 BOTH REC CONT
13 ATF ERROR
14 SYSTEM RESET
15 SP/LP
16 MECHACON CS
17 SEL 1
18 SEL 2
19 TS A
20 TS B
21 R/P PB MODE
22 FE ON
23 RF SW P
24 S/S 5V
25 ATF LOCK
26 S/S GND
TO MC-4 BOARD CN506
FL105 C.E TRAP
LIMITER
FL104 REC C BPF
FL103 PB C BPF
FL106 CF
CARRIER INVERT
CARRIER CONV
CHROMA CONV
BURST EMPH/DE
APC DET
APC DET SW & AMP
378 fH VCO
APC ID
AFC
P.HOLD
ACK DET
ACK
XTAL 90°
CHROMA INVERT
F-F 8-10
ACC AMP
ACC DET
SW
X102 3.58MHz
1/8 DIVIDER
VARIABLE DIVIDER
INVERT
LATCH
AFC ID (R)
APC ID (PB)
AFC (R)
C SYNC
SYNTHESIS GATE
DELAY PULSE GENERATOR
H.M.K
VARIABLE DIVIDER
MODE CONTROL
S/H A
S/H B
PB ATF LPF
ATF BAL
FL108 (6kHz) BPF
FL107 47kHz BPF
TP112
TP117
TP118
TP119
no mark : REC mode
( ) : PB mode

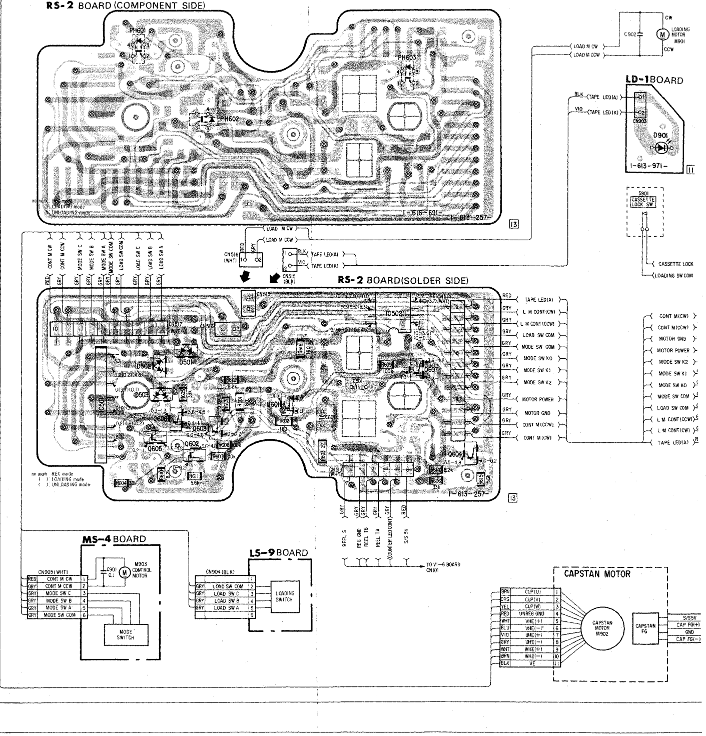
4-5. MC-4 (SERVO, MECHANISM CONTROL), SV-13 (DRUM MOTOR/CAPSTAN MOTOR DRIVE), MS-4 (MODE SWITCH, MODE CONTROL MOTOR), LS-9 (LOADING SWITCH), LD-1 (TAPE SENSOR LED), RS-2 (LOADING MOTOR/CONTROL MOTOR D

– Ref. No. SV-13, MS-4, LS-9, LD-1 BOARD : 5000 series, MC-4 BOARD : 7000 series, RS-2 BOARD : 8000 series –

	Q, IC	D	ADJ	TP
B	519			
C	IC502		RV501	
	509			
D			RV503	
	516			507
	504			
	506			
	501		RV502	
	503		RV504	
E	502			501,502 503,505
F				501,502 503,505
		504		
	510	502		
G	513	501		507
	508			
	515 IC505 IC504			
H	IC501			
	517			
I	514, 518			
	Q, IC	D	ADJ	TP


VE
WHE(−)
WHE(+)
UHE(−)
UHE(+)
VHE(−)
VHE(+)
UNREG GND
CAP(W)
CAP(V)
CAP(U)
CN511(WHT)
DRUM(W)
COM
DRUM(V)
DRUM(U)
CN510 (RED)
UNREG
CUE+CUE
CAP PULSE
TF 4
PAUSE VR
SV 5V
TAPE END
CAP Vcc
REG GND
CAP ON
DRUM ON
CAP CW/CCW
LP/SP
ATF LOCK
SEL 2
SEL 1
DSPDA M
SW P ADJ
DRUM ERROR
CAP ERROR
C FG
SYSTEM SYNC
D FG
UNREG GND
SV-13 BOARD (COMPONENT SIDE)
SV-13 BOARD (SOLDER SIDE)
IC502
IC501
IC504
IC505
TP501
TP502
TP503
TP505
TP507
1-613-252-
13
no mark : REC mode
( ) : CUE+REV mode
Marked ※ is not able to measure the voltage of it's position.
MECHA DECK GND

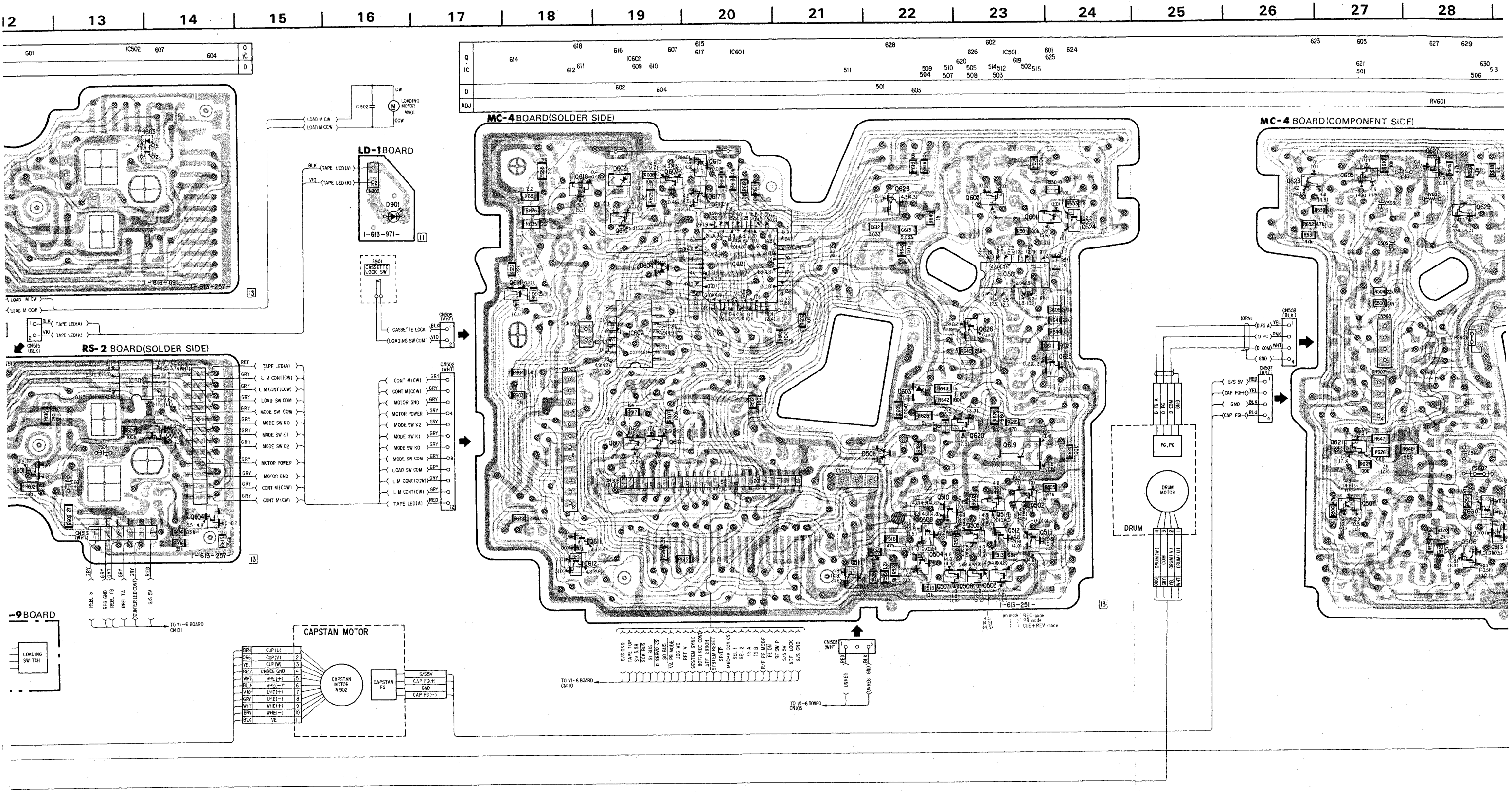
Q·IC	IC501	605	606	602	603	601	IC502	607	604	Q·IC
D		502 503	501							D


RS-2 BOARD (COMPONENT SIDE)
RS-2 BOARD (SOLDER SIDE)
PH601
PH602
PH603
IC501
IC502
1-616-691-
1-613-257-
13
no mark : REC mode
( ) : LOADING mode
( ) : UNLOADING mode
CONT M CW
CONT M CCW
MODE SW C
MODE SW B
MODE SW A
MODE SW COM
LOAD SW C
LOAD SW B
LOAD SW A
CN516 (WHT)
CN515 (BLK)
LOAD M CW
LOAD M CCW
TAPE LED(A)
TAPE LED(K)
C902
CW
CCW
LOADING MOTOR M901
LD-1 BOARD
CN903
D901
1-613-971-
11
S901 CASSETTE LOCK SW
CASSETTE LOCK
LOADING SW COM
L M CONT(CW)
L M CONT(CCW)
LOAD SW COM
MODE SW COM
MODE SW K0
MODE SW K1
MODE SW K2
MOTOR POWER
MOTOR GND
CONT M(CCW)
CONT M(CW)
REEL S
REG GND
REEL TB
REEL TA
(COUNTER LED CONT)
S/S 5V
TO VI-6 BOARD CN101
MS-4 BOARD
CN905 (WHT)
C901 0.1
M903 CONTROL MOTOR
MODE SWITCH
LS-9 BOARD
CN904 (BLK)
LOADING SWITCH
CAPSTAN MOTOR
CUP(U)
CUP(V)
CUP(W)
UNREG GND
VHE(+)
VHE(−)
UHE(+)
UHE(−)
WHE(+)
WHE(−)
VE
CAPSTAN MOTOR M902
CAPSTAN FG
S/S5V
CAP FG(+)
GND
CAP FG(−)

Note:

- ⊗ : Through hole.
- : pattern from the side which enables seeing.
- : B+ pattern
- : pattern of the rear side.

-1 (TAPE SENSOR LED), RS-2 (LOADING MOTOR/CONTROL MOTOR DRIVE) PRINTED WIRING BOARDS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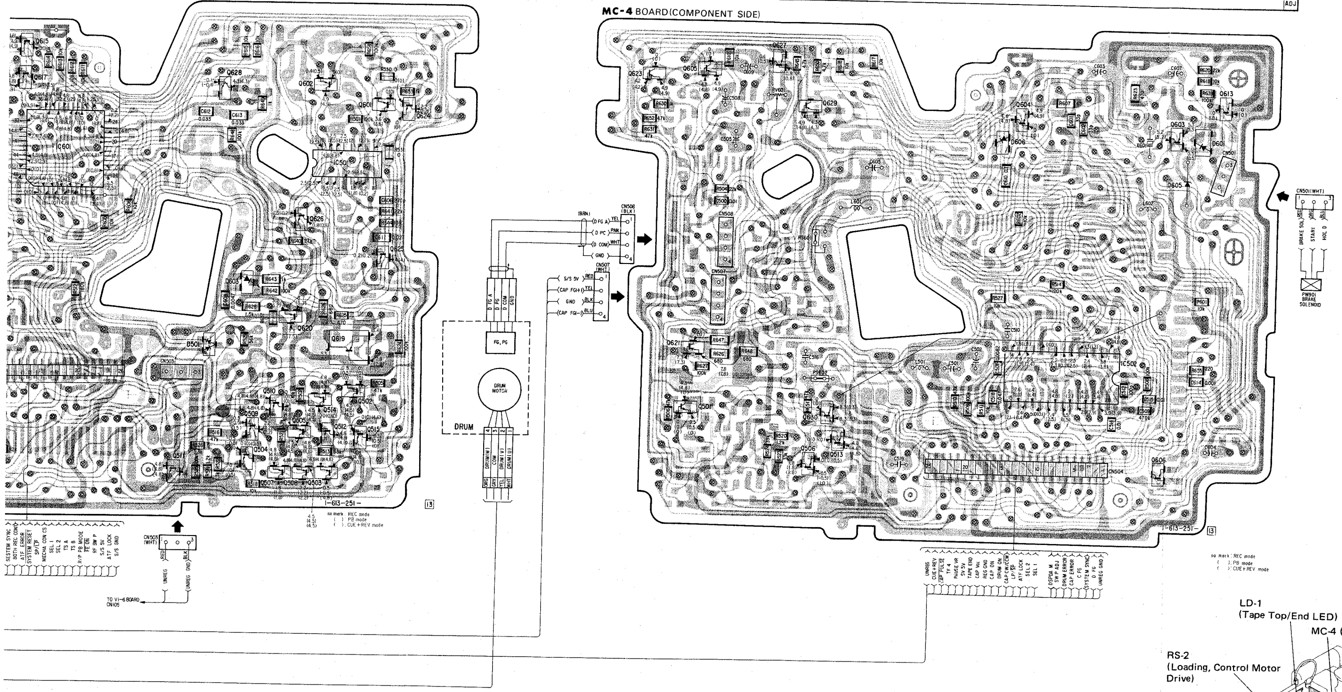
21
22
23
24
25
26
27
28
Q
IC
D
ADJ
LD-1 BOARD
CN903
D901
1-613-971-
LOADING MOTOR M901
CW
CCW
C902
LOAD M CW
LOAD M CCW
TAPE LED(A)
TAPE LED(K)
S901 CASSETTE LOCK SW
PH603
1-616-691-
1-613-257-
RS-2 BOARD(SOLDER SIDE)
CN515 (BLK)
IC502
Q601
Q604
Q607
CN513 (WHT)
REEL S
REG GND
REEL TB
REEL TA
COUNTER LED CONT
S/S 5V
TO VI-6 BOARD CN101
-9 BOARD
LOADING SWITCH
TAPE LED(A)
L M CONT(CW)
L M CONT(CCW)
LOAD SW COM
MODE SW COM
MODE SW K0
MODE SW K1
MODE SW K2
MOTOR POWER
MOTOR GND
CONT M(CCW)
CONT M(CW)
CN505 (WHT)
CASSETTE LOCK
LOADING SW COM
CN502 (WHT)
CAPSTAN MOTOR
CUP(U)
CUP(V)
CUP(W)
UNREG GND
VHE(+)
VHE(−)
UHE(+)
UHE(−)
WHE(+)
WHE(−)
VE
BRN
ORG
YEL
RED
WHT
BLU
VIO
GRY
BLK
CAPSTAN MOTOR M902
CAPSTAN FG
S/S5V
CAP FG(+)
GND
CAP FG(−)
MC-4 BOARD(SOLDER SIDE)
IC601
IC602
IC501
1-613-251-
S/S GND
TAPE TOP
SV 3.58
SCK BUS
SI BUS
D SERVO CS
SO BUS
VA PB MODE
JOG VD
REF V
SESTEM SYNC
BOTH REC CONT
ATF ERROR
SYSTEM RESET
SP/LP
MECHA CON CS
SEL 1
SEL 2
TS A
TS B
R/P PB MODE
FE ON
RF SW P
S/S 5V
ATF LOCK
S/S GND
TO VI-6 BOARD CN110
CN503 (WHT)
UNREG
UNREG GND
TO VI-6 BOARD CN105
no mark : REC mode
( ) PB mode
〈 〉 CUE +REV mode
CN508 (BLK)
D FG A
D PG
D COM
GND
CN507 (WHT)
S/S 5V
CAP FG(+)
GND
CAP FG(−)
FG, PG
DRUM MOTOR
DRUM
DRUM(W)
COM
DRUM(V)
DRUM(U)
MC-4 BOARD(COMPONENT SIDE)
RV601
13

Caution:	
Pattern face side: (Solder Side)	Parts on the pat the pattern face a
Parts face side: (Component Side)	Parts on the pa the part face are i

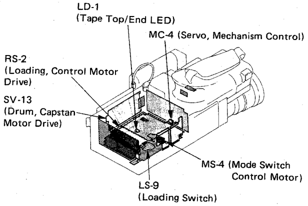
	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Q·IC	615 617 IC601	511	628 509 504 510 507	602 626 IC501 620 619 505 508 514 512 503 502 515	601 625 624			623 605 621 501	627 629 630 513 506			604 IC502	603 606	613		
D			501 603								606		605	601		
ADJ									RV601							

A B C D E F G H I J

MC-4 BOARD(COMPONENT SIDE)


Q615
Q617
IC601
Q628
Q602
Q601
Q624
IC501
Q626
Q625
Q603
Q620
Q619
D501
CN503
Q510
Q514
Q502
Q509
Q605
Q512
Q515
Q504
Q511
Q507
Q508
Q503
1-613-251-
13
(BRN)
(D FG A) YEL
(D PC) PNK
(D COM) WHT
(GND)
CN508 (BLK)
CN507 (WHT)
S/S 5V RED
(CAP FG(+)) YEL
GND BLK
(CAP FG(−)) BLU
D FG A
D PG
D COM
GND
FG, PG
DRUM MOTOR
DRUM
4 3 2 1
DRUM(W)
COM
DRUM(V)
DRUM(U)
ORG
GRY
YEL
WHT
SESTEM SYNC
BOTH REC CONT
ATF ERROR
SYSTEM RESET
SP/LP
MECHA CON CS
SEL 1
SEL 2
TS A
TS B
R/P PB MODE
FE ON
RF SW P
S/S 5V
ATF LOCK
S/S GND
CN503 (WHT)
RED
BLK
UNREG
UNREG GND
TO VI-6 BOARD CN105
Q623
Q606
Q627
RV601
Q629
Q604
Q613
Q603
Q601
CN501
Q605
CN508
CN507
IC502
Q621
Q501
Q630
Q506
Q513
Q606
CN504
1-613-251-
13
CN501(WHT)
RED
ORG
BLU
BRAKE SOL
START
HOLD
PM901 BRAKE SOLENOID
UNREG
CUE+REV
CAP PULSE
TF 4
PAUSE VR
SV 5V
TAPE END
CAP Vcc
REG GND
CAP ON
DRUM ON
CAP CW/CCW
LP/SP
ATF LOCK
SEL 2
SEL 1
DSPDA M
SW P ADJ
DRUM ERROR
CAP ERROR
C FG
SYSTEM SYNC
D FG
UNREG GND

no mark : REC mode
( ) : PB mode
( ) : CUE+REV mode


LD-1
(Tape Top/End LED)
MC-4 (Servo, Mechanism Control)
RS-2
(Loading, Control Motor Drive)
SV-13
(Drum, Capstan Motor Drive)
MS-4 (Mode Switch Control Motor)
LS-9
(Loading Switch)

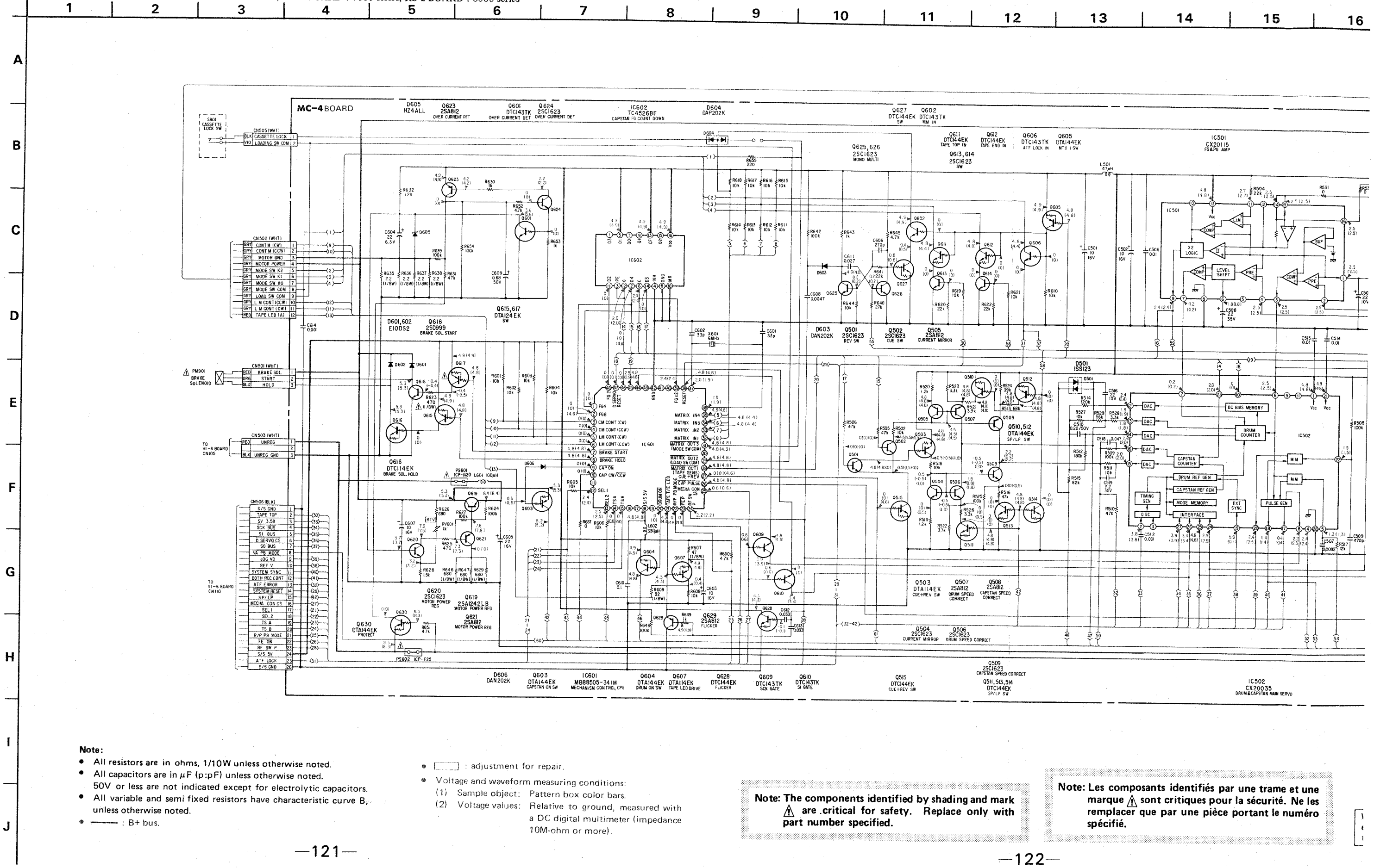
Caution:

Pattern face side: (Solder Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the part face are indicated.

When indicating parts by reference number, please include the board name.

MC-4 (SERVO, MECHANISM CONTROL), SV-13 (DRUM MOTOR/CAPSTAN MOTOR DRIVE), MS-4 (MODE SWITCH, MODE CONTROL MOTOR), LS-9 (LOADING SWITCH), LD-1 (TAPE SENSOR LED), RS-2 (LOADING MOTOR/CONTROL MOTOR

– Ref. No. SV-13, MS-4, LS-9, LD-1 BOARD : 5000 series, MC-4 BOARD : 7000 series, RS-2 BOARD : 8000 series –


MC-4 BOARD
S901 CASSETTE LOCK SW
CN505 (WHT)
CN502 (WHT)
CN501 (WHT)
CN503 (WHT)
CN506 (BLK)
PM901 BRAKE SOLENOID
TO VI-6 BOARD CN105
TO VI-6 BOARD CN110
IC602 TC4526BF CAPSTAN FG COUNT DOWN
IC601 MB88505-341M MECHANISM CONTROL CPU
IC501 CX20115 FG&PG AMP
IC502 CX20035 DRUM & CAPSTAN MAIN SERVO
D604 DAP202K
D605 HZ4ALL
D603 DAN202K
D606 DAN202K
D601,602 EI0DS2
D501 1SS123
Q623 2SA812 OVER CURRENT DET
Q601 DTC143TK OVER CURRENT DET
Q624 2SC1623 OVER CURRENT DET
Q627 DTC144EK SW
Q602 DTC143TK MM IN
Q611 DTC144EK TAPE TOP IN
Q612 DTC144EK TAPE END IN
Q606 DTC143TK ATF LOCK IN
Q605 DTA144EK MTX 1 SW
Q625,626 2SC1623 MONO MULTI
Q613,614 2SC1623 SW
Q615,617 DTA124EK SW
Q618 2SD999 BRAKE SOL. START
Q616 DTC114EK BRAKE SOL. HOLD
Q620 2SC1623 MOTOR POWER REG
Q619 2SA1242LB MOTOR POWER REG
Q621 2SA812 MOTOR POWER REG
Q630 DTA144EK PROTECT
Q603 DTA144EK CAPSTAN ON SW
Q604 DTA144EK DRUM ON SW
Q607 DTA114EK TAPE LED DRIVE
Q628 DTC144EK FLICKER
Q629 2SA812 FLICKER
Q609 DTC143TK SCK GATE
Q610 DTC143TK SI GATE
Q501 2SC1623 REV SW
Q502 2SC1623 CUE SW
Q505 2SA812 CURRENT MIRROR
Q510,512 DTA144EK SP/LP SW
Q503 DTA114EK CUE+REV SW
Q507 2SA812 DRUM SPEED CORRECT
Q508 2SA812 CAPSTAN SPEED CORRECT
Q504 2SC1623 CURRENT MIRROR
Q506 2SC1623 DRUM SPEED CORRECT
Q509 2SC1623 CAPSTAN SPEED CORRECT
Q515 DTC144EK CUE+REV SW
Q511,513,514 DTC144EK SP/LP SW
PS601 ICP-N20
PS602 ICP-F25
X601 6MHz
L501 47μH
L601 100μH
L602 330μH
DC BIAS MEMORY
DRUM COUNTER
CAPSTAN COUNTER
DRUM REF GEN
CAPSTAN REF GEN
MODE MEMORY
INTERFACE
TIMING GEN
OSC
EXT SYNC
PULSE GEN
X2 LOGIC
LEVEL SHIFT
DAC
M.M
BUF
COMP
PRE
LIM

Note:

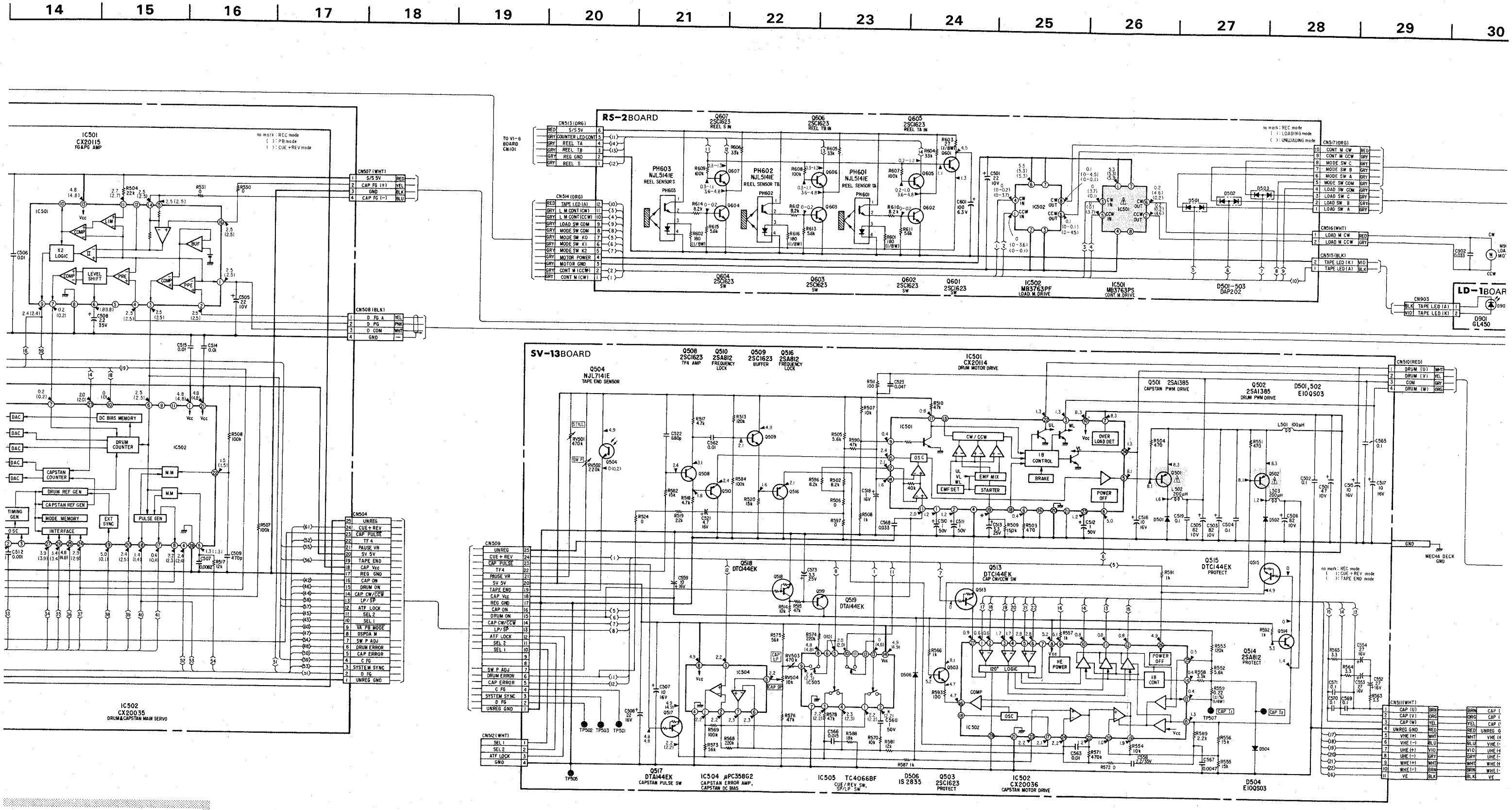
- All resistors are in ohms, 1/10W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted. 50V or less are not indicated except for electrolytic capacitors.
- All variable and semi fixed resistors have characteristic curve B, unless otherwise noted.
- ——— : B+ bus.

- ⬚ : adjustment for repair.
- Voltage and waveform measuring conditions:
  - (1) Sample object: Pattern box color bars.
  - (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

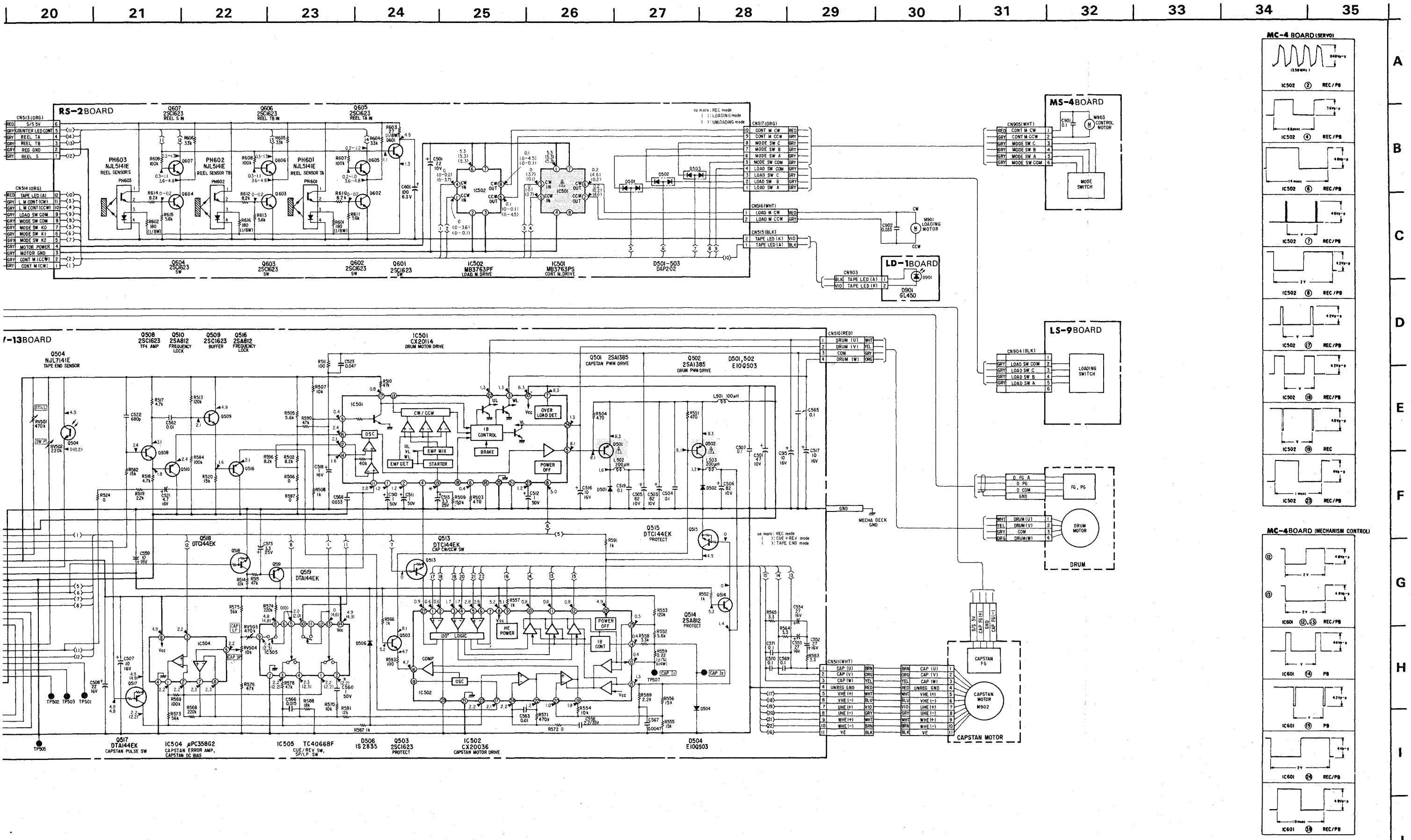
2 (LOADING MOTOR/CONTROL MOTOR DRIVE) SCHEMATIC DIAGRAM


14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
IC501 CX20115 FG&PG AMP
IC502 CX20035 DRUM&CAPSTAN MAIN SERVO
CN507 (WHT)
CN508 (BLK)
CN504
RS-2BOARD
To VI-6 BOARD CN101
CN513 (ORG)
CN514 (ORG)
Q607 2SC1623 REEL S IN
Q606 2SC1623 REEL TB IN
Q605 2SC1623 REEL TA IN
PH603 NJL5141E REEL SENSORS
PH602 NJL5141E REEL SENSOR TB
PH601 NJL5141E REEL SENSOR TA
Q604 2SC1623 SW
Q603 2SC1623 SW
Q602 2SC1623 SW
Q601 2SC1623 SW
IC502 MB3763PF LOAD. M. DRIVE
IC501 MB3763PS CONT. M. DRIVE
D501-503 DAP202
CN517 (ORG)
CN516 (WHT)
CN515 (BLK)
LD-1BOARD
CN903
D901 GL450
SV-13BOARD
Q504 NJL7141E TAPE END SENSOR
Q508 2SC1623 TF4 AMP
Q510 2SA812 FREQUENCY LOCK
Q509 2SC1623 BUFFER
Q516 2SA812 FREQUENCY LOCK
IC501 CX20114 DRUM MOTOR DRIVE
Q501 2SA1385 CAPSTAN PWM DRIVE
Q502 2SA1385 DRUM PWM DRIVE
D501,502 E10QS03
CN510 (RED)
CN509
CN512 (WHT)
Q518 DTC144EK
Q519 DTA144EK
Q513 DTC144EK CAP CW/CCW SW
Q515 DTC144EK PROTECT
Q514 2SA812 PROTECT
CN511 (WHT)
MECHA DECK GND
TP502
TP503
TP501
TP505
Q517 DTA144EK CAPSTAN PULSE SW
IC504 μPC358G2 CAPSTAN ERROR AMP, CAPSTAN DC BIAS
IC505 TC4066BF CUE/REV SW, SP/LP SW
D506 1S2835
Q503 2SC1623 PROTECT
IC502 CX20036 CAPSTAN MOTOR DRIVE
D504 E10QS03

osants identifiés par une trame et une
sont critiques pour la sécurité. Ne les
que par une pièce portant le numéro

When indicating parts by reference number, please include the board name.

SERVO/MECHANISM CONTROL

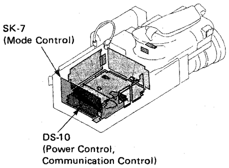

20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
A
B
C
D
E
F
G
H
I
J
RS-2BOARD
Q607 2SC1623 REEL S IN
Q606 2SC1623 REEL TB IN
Q605 2SC1623 REEL TA IN
PH603 NJL5141E REEL SENSOR S
PH602 NJL5141E REEL SENSOR TB
PH601 NJL5141E REEL SENSOR TA
Q604 2SC1623 SW
Q603 2SC1623 SW
Q602 2SC1623 SW
Q601 2SC1623 SW
IC502 MB3763PF LOAD M DRIVE
IC501 MB3763PS CONT. M DRIVE
D501-503 DAP202
CN513 (ORG)
CN514 (ORG)
CN517 (ORG)
CN516 (WHT)
CN515 (BLK)
MS-4BOARD
M903 CONTROL MOTOR
MODE SWITCH
M901 LOADING MOTOR
LD-1BOARD
D901 GL450
LS-9BOARD
LOADING SWITCH
FG, PG
DRUM MOTOR
DRUM
MECHA DECK GND
CAPSTAN FG
CAPSTAN MOTOR M902
CAPSTAN MOTOR
-13BOARD
Q504 NJL7141E TAPE END SENSOR
Q508 2SC1623 TF4 AMP
Q510 2SA812 FREQUENCY LOCK
Q509 2SC1623 BUFFER
Q516 2SA812 FREQUENCY LOCK
IC501 CX20114 DRUM MOTOR DRIVE
Q501 2SA1385 CAPSTAN PWM DRIVE
Q502 2SA1385 DRUM PWM DRIVE
D501, 502 E10QS03
Q518 DTC144EK
Q519 DTA144EK
Q513 DTC144EK CAP CW/CCW SW
Q515 DTC144EK PROTECT
Q514 2SA812 PROTECT
Q517 DTA144EK CAPSTAN PULSE SW
IC504 μPC358G2 CAPSTAN ERROR AMP, CAPSTAN DC BIAS
IC505 TC4066BF CUE/REV SW, SP/LP SW
D506 1S2835
Q503 2SC1623 PROTECT
IC502 CX20036 CAPSTAN MOTOR DRIVE
D504 E10QS03
CN510 (RED)
CN511 (WHT)
no mark : REC mode
( ) : LOADING mode
( ) : UNLOADING mode
no mark : REC mode
( ) : CUE+REV mode
( ) : TAPE END mode
MC-4 BOARD (SERVO)
IC502 ② REC/PB
IC502 ④ REC/PB
IC502 ⑥ REC/PB
IC502 ⑦ REC/PB
IC502 ⑧ REC/PB
IC502 ⑰ REC/PB
IC502 ⑱ REC/PB
IC502 ⑲ REC
IC502 ㉓ REC/PB
MC-4BOARD (MECHANISM CONTROL)
IC601 ⑫,⑬ REC/PB
IC601 ⑭ PB
IC601 ⑮ PB
IC601 ㉔ REC/PB
IC601 ㉝ REC/PB

MODE CONTROL

4-6. SK-7 (MODE CONTROL), DS-10 (POWER SUPPLY CONTR

– Ref. No. DS-10 BOARD : 1000 series, SK-7 BOARD : 5000 series –

1 | 2 | 3 | 4


SK-7
(Mode Control)
DS-10
(Power Control,
Communication Control)

Note:

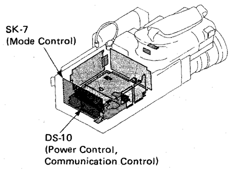
- ⊗ : Through hole.
- ▨ : pattern from the side which enables seeing.
- ▨ : B+ pattern
- ▨ : pattern of the rear side.

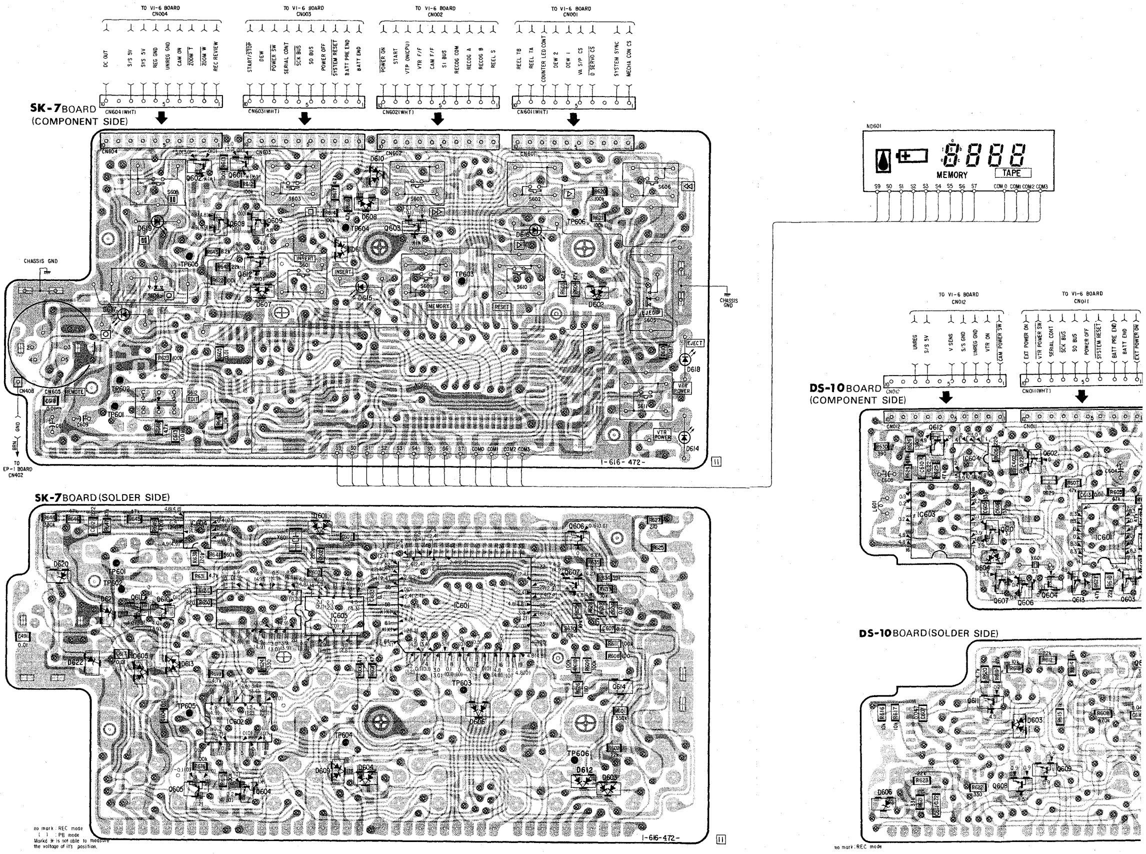
	Q,IC	D
A		
B	601 602	
C	608,609 603	610 608 619 616 611
D	612	615 607 602 617
E		618 614
F	IC604 606	601
G	607 IC601 611,IC603 610,IC605	620 621
H	Q614 IC602	622 613 605 606
I	605 604	609 604,612 603
J		
	Q,IC	D

4-6. SK-7 (MODE CONTROL), DS-10 (POWER SUPPLY CONTROL, COMMUNICATION CONTROL CPU) PRINTED WIRING BOARDS

– Ref. No. DS-10 BOARD : 1000 series, SK-7 BOARD : 5000 series –

Q,IC	D	TP
601		
602		
	610	
	608	606
		604
608,609	619	
603	616	
		605
	611	
612		
		603
	615	
	607 602	
	617	
	618	
		602
		601
	614	
606		
IC604	601	
		601
	620	602
607		
IC601		
611,IC603	621	
610,IC605		
	622 613	
	605	
Q614		603
	606	
		605
IC602		
		604
		606
	609	
	604,612	
605	603	
604		
Q,IC	D	TP


SK-7
(Mode Control)
DS-10
(Power Control,
Communication Control)


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
TO VI-6 BOARD CN004
DC OUT
S/S 5V
SYS 5V
REG GND
UNREG GND
CAM ON
ZOOM T
ZOOM W
REC REVIEW
CN604(WHT)
TO VI-6 BOARD CN003
START/STOP
DEW
POWER SW
SERIAL CONT
SCK BUS
SO BUS
POWER OFF
SYSTEM RESET
BATT PRE END
BATT END
CN603(WHT)
TO VI-6 BOARD CN002
POWER ON
START
VTP ON(CPU)
VTR F/F
CAM F/F
SI BUS
RECOG COM
RECOG A
RECOG B
REEL S
CN602(WHT)
TO VI-6 BOARD CN001
REEL TB
REEL TA
COUNTER LED CONT
DEW 2
DEW 1
VA S/P CS
D SERVO CS
SYSTEM SYNC
MECHA CON CS
CN601(WHT)
SK-7 BOARD
(COMPONENT SIDE)
CHASSIS GND
CN408
GND
BRN
TO EP-1 BOARD CN402
REMOTE
EDIT
INSERT
MEMORY
RESET
EJECT
VTR POWER
1-616-472-
SK-7 BOARD (SOLDER SIDE)
IC601
IC602
IC603
IC605
1-616-472-
ND601
MEMORY
TAPE
S9 S0 S1 S2 S3 S4 S5 S6 S7 COM 0 COM1 COM2 COM3
TO VI-6 BOARD CN012
UNREG
S/S 5V
V SENS
S/S GND
UNREG GND
VTR ON
CAM POWER SW
CN012
TO VI-6 BOARD CN011
EXT POWER ON
VTR POWER SW
SERIAL CONT
SCK BUS
SO BUS
POWER OFF
SYSTEM RESET
BATT PRE END
BATT END
EXT POWER ON
CN011(WHT)
DS-10 BOARD
(COMPONENT SIDE)
IC604
IC603
IC601
DS-10 BOARD (SOLDER SIDE)
no mark : REC mode

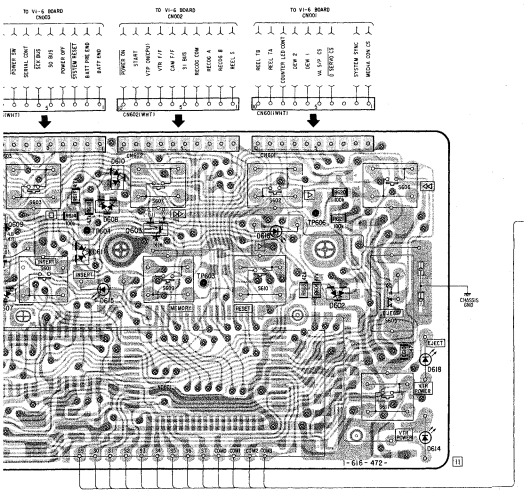
no mark : REC mode
( ) : PB mode
Markd ※ is not able to measure the voltage of it's position.

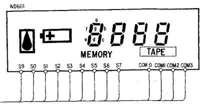
Note:

- ⊗ : Through hole.
- ▨ : pattern from the side which enables seeing.
- ▨ : B+ pattern
- ▨ : pattern of the rear side.

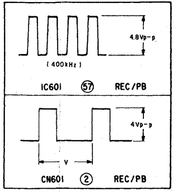
D WIRING BOARDS

8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

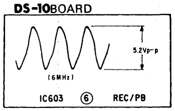

TO VI-6 BOARD CN003
POWER SW
SERIAL CONT
SCK BUS
SO BUS
POWER OFF
SYSTEM RESET
BATT PRE END
BATT END
(WHT)
TO VI-6 BOARD CN002
POWER ON
START
VTP ON(CPU)
VTR F/F
CAM F/F
SI BUS
RECOG COM
RECOG A
RECOG B
REEL S
CN602(WHT)
TO VI-6 BOARD CN001
REEL TB
REEL TA
COUNTER LED CONT
DEW 2
DEW 1
VA S/P CS
D SERVO CS
SYSTEM SYNC
MECHA CON CS
CN601(WHT)
D610
D608
TP604
Q603
TP603
TP606
D602
D618
D614
S601
S603
S606
S607
S608
S609
S610
S611
INSERT
MEMORY
RESET
EJECT
VTR POWER
CHASSIS GND
1-616-472-
11


ND601
MEMORY
TAPE
S9 S0 S1 S2 S3 S4 S5 S6 S7
COM0 COM1 COM2 COM3

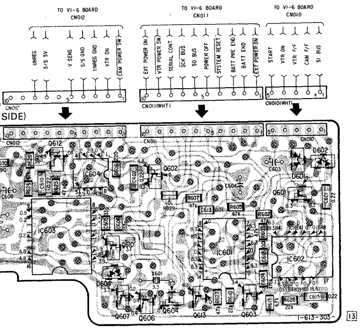
SK-7 BOARD (MODE CONTROL)

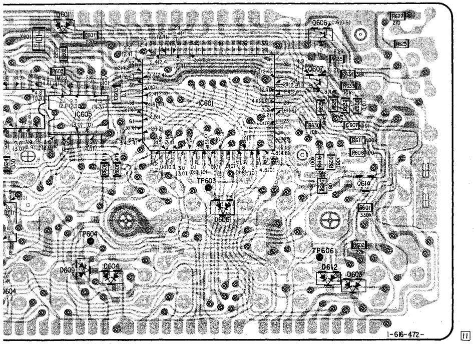


DS-10BOARD

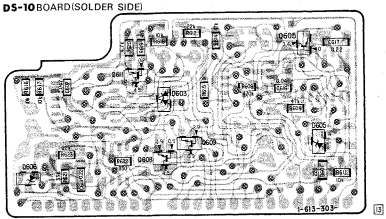


DS-10BOARD
(COMPONENT SIDE)


TO VI-6 BOARD CN012
UNREG
S/S 5V
V SENS
S/S GND
UNREG GND
VTR ON
CAM POWER SW
CN017
TO VI-6 BOARD CN011
EXT POWER ON
VTR POWER SW
SERIAL CONT
SCK BUS
SO BUS
POWER OFF
SYSTEM RESET
BATT PRE END
BATT END
EXT POWER ON
CN011(WHT)
TO VI-6 BOARD CN010
START
VTR ON
VTR F/F
CAM F/F
SI BUS
CN010(WHT)
Q612
Q602
Q601
Q604
Q606
Q607
Q603
Q613
IC601
IC602
IC603
IC604
D601
D602
1-613-303-
13


IC601
IC605
Q606
Q607
Q614
TP603
TP604
TP606
D601
D604
D606
D609
D612
D603
1-616-472-
11

DS-10 BOARD(SOLDER SIDE)


Q605
Q611
Q603
Q608
Q609
D605
D606
1-613-303-
13

no mark : REC mode

Q, IC	D
612	601,602
IC604,602	
	601
IC603	
610, IC601	
IC602	
	604
607,604,613,603	
606	
605	
611	
	603
609	605
608	
	606
Q, IC	D

Caution:

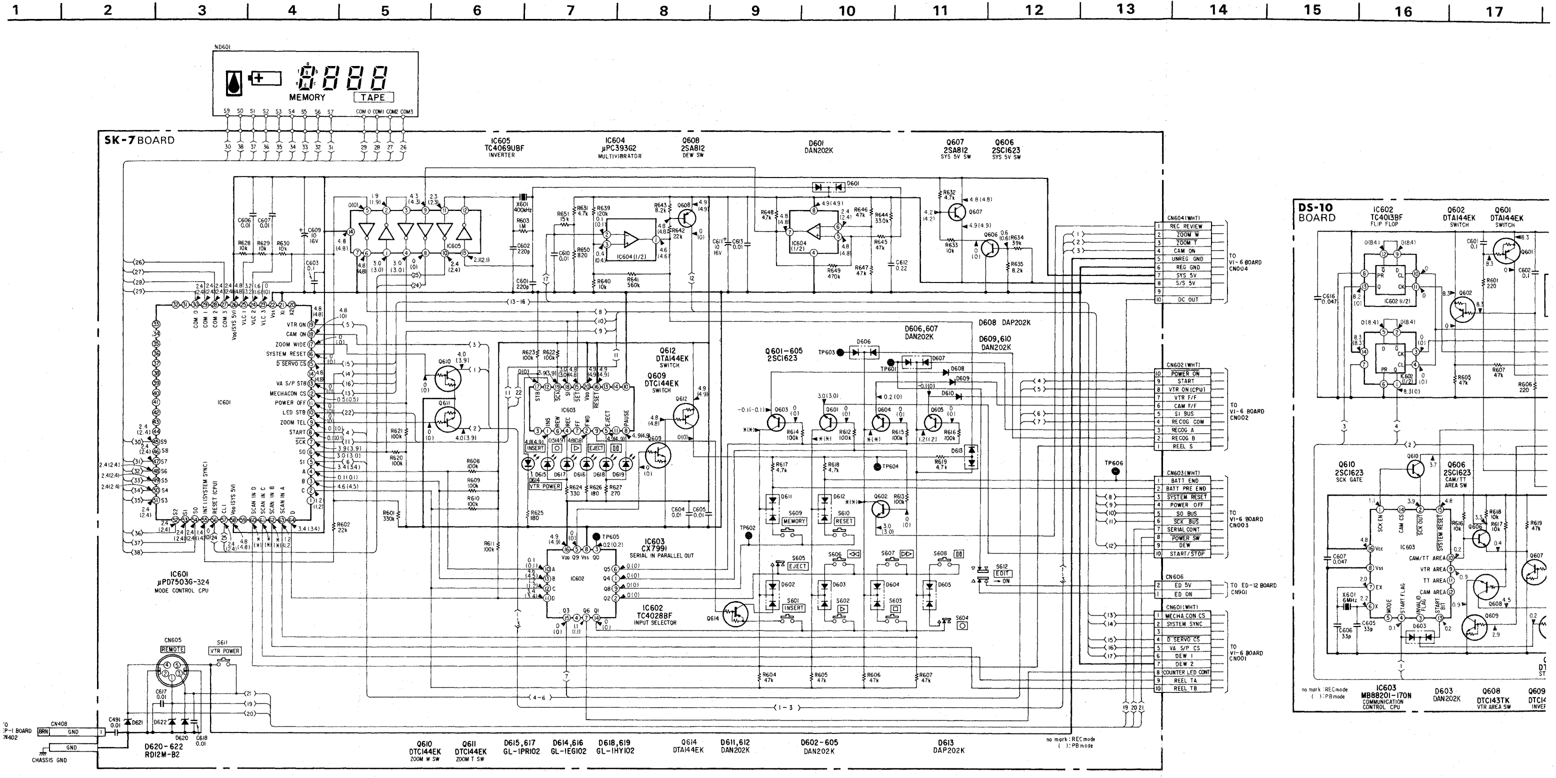
Pattern face side: (Solder Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the part face are indicated.

When indicating parts by reference number, please include the board name.

A B C D E F G H I J

MODE CONTROL), DS-10 (POWER SUPPLY CONTROL, COMMUNICATION CONTROL CPU) SCHEMATIC DIAGRAM

o. DS-10 BOARD : 1000 series, SK-7 BOARD : 5000 series –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ND601
MEMORY
TAPE
SK-7 BOARD
IC605 TC4069UBF INVERTER
IC604 μPC393G2 MULTIVIBRATOR
Q608 2SA812 DEW SW
D601 DAN202K
Q607 2SA812 SYS 5V SW
Q606 2SC1623 SYS 5V SW
IC601
IC601 μPD75036-324 MODE CONTROL CPU
VTR ON
CAM ON
ZOOM WIDE
SYSTEM RESET
D SERVO CS
VA S/P STB
MECHACON CS
POWER OFF
LED STB
ZOOM TEL
START
SCK
SO
SI
Q610
Q611
Q612 DTA144EK SWITCH
Q609 DTC144EK SWITCH
IC603
INSERT
EJECT
VTR POWER
IC603 CX799 SERIAL IN PARALLEL OUT
IC602
IC602 TC4028BF INPUT SELECTOR
TP605
Q601-605 2SC1623
D606,607 DAN202K
D608 DAP202K
D609,610 DAN202K
TP603
TP601
TP602
TP604
TP606
S609 MEMORY
S610 RESET
S605 EJECT
S606
S607
S608
S612 EDIT ON
S601 INSERT
S602
S603
S604
Q614
CN604 (WHT)
REC REVIEW
ZOOM W
ZOOM T
CAM ON
UNREG GND
REG GND
SYS 5V
S/S 5V
DC OUT
TO VI-6 BOARD CN004
CN602 (WHT)
POWER ON
START
VTR ON (CPU)
VTR F/F
CAM F/F
SI BUS
RECOG COM
RECOG A
RECOG B
REEL S
TO VI-6 BOARD CN002
CN603 (WHT)
BATT END
BATT PRE END
SYSTEM RESET
POWER OFF
SO BUS
SCK BUS
SERIAL CONT
POWER SW
DEW
START/STOP
TO VI-6 BOARD CN003
CN606
ED 5V
ED ON
TO ED-12 BOARD CN901
CN601 (WHT)
MECHA.CON CS
SYSTEM SYNC
D SERVO CS
VA S/P CS
DEW 1
DEW 2
COUNTER LED CONT
REEL TA
REEL TB
TO VI-6 BOARD CN001
CN605
REMOTE
S611
VTR POWER
CN408
GND
TO EP-1 BOARD CN402
CHASSIS GND
D620-622 RD12M-B2
Q610 DTC144EK ZOOM W SW
Q611 DTC144EK ZOOM T SW
D615,617 GL-1PR102
D614,616 GL-1EG102
D618,619 GL-1HY102
Q614 DTA144EK
D611,612 DAN202K
D602-605 DAN202K
D613 DAP202K
no mark : REC mode ( ) : PB mode
DS-10 BOARD
IC602 TC4013BF FLIP FLOP
Q602 DTA144EK SWITCH
Q601 DTA144EK SWITCH
Q610 2SC1623 SCK GATE
Q606 2SC1623 CAM/TT AREA SW
IC603
CAM/TT AREA
VTR AREA
TT AREA
CAM AREA
X601 6MHz
IC603 MB88201-170N COMMUNICATION CONTROL CPU
D603 DAN202K
Q608 DTC143TK VTR AREA SW
Q609 DTC1 INVER

Note:

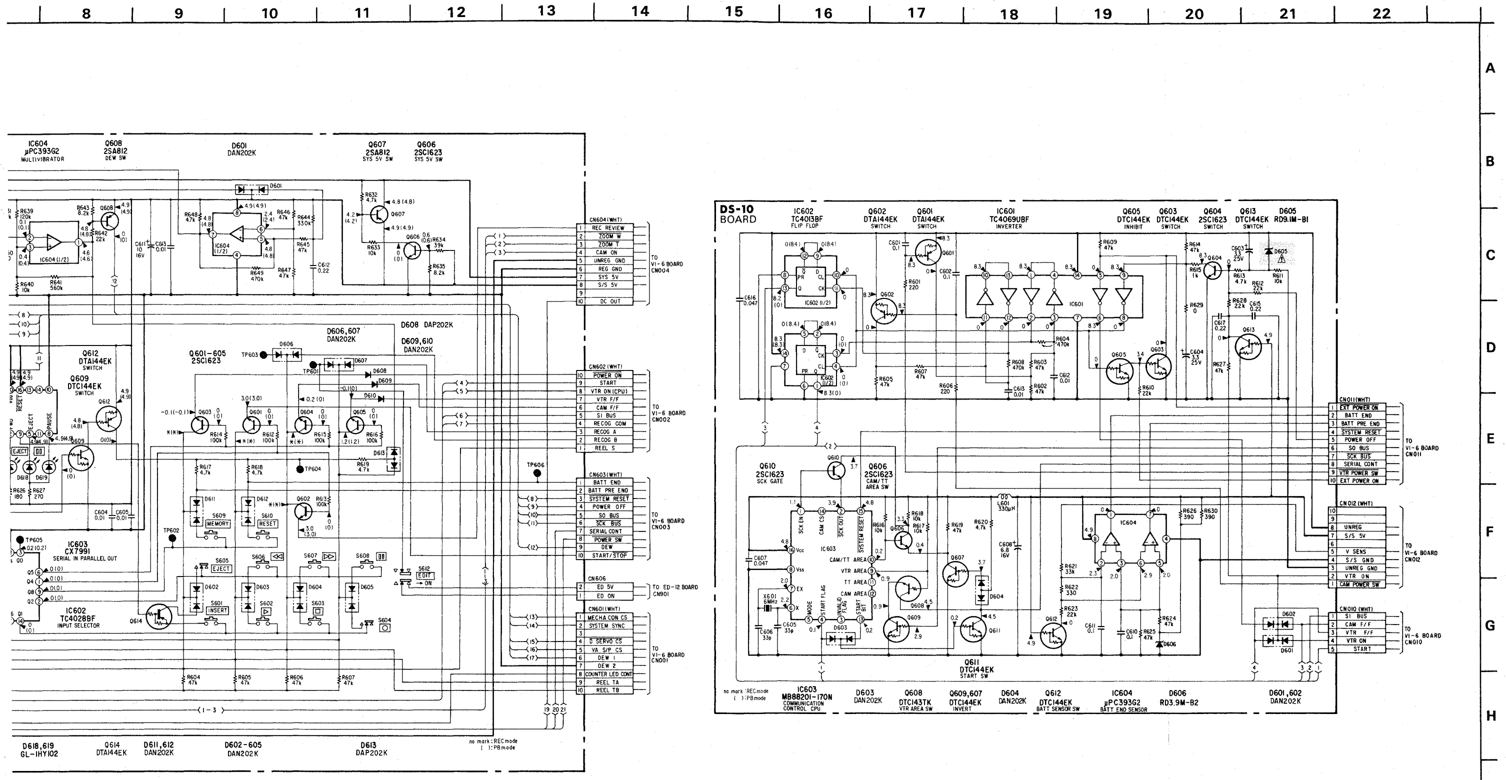
- All resistors are in ohms, 1/10W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted. 50V or less are not indicated except for electrolytic capacitors.
- All variable and semi-fixed resistors have characteristic curve B, unless otherwise noted.
- ▭ : panel designation.
- ——— : B+ bus.
- ▭ : adjustment for repair.
- Voltage and waveform measuring conditions:
  (1) Sample object: Pattern box color bars.
  (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by r ence number, please in the board name.

MATIC DIAGRAM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A
B
C
D
E
F
G
H
I
J
IC604 μPC393G2 MULTIVIBRATOR
Q608 2SA812 DEW SW
D601 DAN202K
Q607 2SA812 SYS 5V SW
Q606 2SC1623 SYS 5V SW
Q612 DTA144EK SWITCH
Q609 DTC144EK SWITCH
Q601-605 2SC1623
D606,607 DAN202K
D608 DAP202K
D609,610 DAN202K
IC603 CX7991 SERIAL IN PARALLEL OUT
IC602 TC4028BF INPUT SELECTOR
CN604 (WHT)
REC REVIEW
ZOOM W
ZOOM T
CAM ON
UNREG GND
REG GND
SYS 5V
S/S 5V
DC OUT
TO VI-6 BOARD CN004
CN602 (WHT)
POWER ON
START
VTR ON (CPU)
VTR F/F
CAM F/F
SI BUS
RECOG COM
RECOG A
RECOG B
REEL S
TO VI-6 BOARD CN002
CN603 (WHT)
BATT END
BATT PRE END
SYSTEM RESET
POWER OFF
SO BUS
SCK BUS
SERIAL CONT
POWER SW
DEW
START/STOP
TO VI-6 BOARD CN003
CN606
ED 5V
ED ON
TO ED-12 BOARD CN901
CN601 (WHT)
MECHA CON CS
SYSTEM SYNC
D SERVO CS
VA S/P CS
DEW 1
DEW 2
COUNTER LED CONT
REEL TA
REEL TB
TO VI-6 BOARD CN001
S609 MEMORY
S610 RESET
S605 EJECT
S601 INSERT
S612 EDIT → ON
D618,619 GL-1HY102
Q614 DTA144EK
D611,612 DAN202K
D602-605 DAN202K
D613 DAP202K
no mark: REC mode
( ): PB mode
DS-10 BOARD
IC602 TC4013BF FLIP FLOP
Q602 DTA144EK SWITCH
Q601 DTA144EK SWITCH
IC601 TC4069UBF INVERTER
Q605 DTC144EK INHIBIT
Q603 DTC144EK SWITCH
Q604 2SC1623 SWITCH
Q613 DTC144EK SWITCH
D605 RD9.1M-B1
Q610 2SC1623 SCK GATE
Q606 2SC1623 CAM/TT AREA SW
IC603
IC604
L601 330μH
X601 6MHz
CN011 (WHT)
EXT POWER ON
BATT END
BATT PRE END
SYSTEM RESET
POWER OFF
SO BUS
SCK BUS
SERIAL CONT
VTR POWER SW
EXT POWER ON
TO VI-6 BOARD CN011
CN012 (WHT)
UNREG
S/S 5V
V SENS
S/S GND
UNREG GND
VTR ON
CAM POWER SW
TO VI-6 BOARD CN012
CN010 (WHT)
SI BUS
CAM F/F
VTR F/F
VTR ON
START
TO VI-6 BOARD CN010
Q611 DTC144EK START SW
IC603 MB88201-170N COMMUNICATION CONTROL CPU
D603 DAN202K
Q608 DTC143TK VTR AREA SW
Q609,607 DTC144EK INVERT
D604 DAN202K
Q612 DTC144EK BATT SENSOR SW
IC604 μPC393G2 BATT END SENSOR
D606 RD3.9M-B2
D601,602 DAN202K

tions:
bars.
d, measured with
imeter (impedance
).

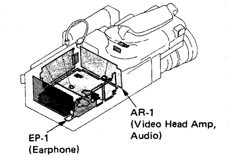
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

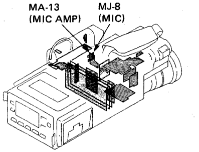
Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

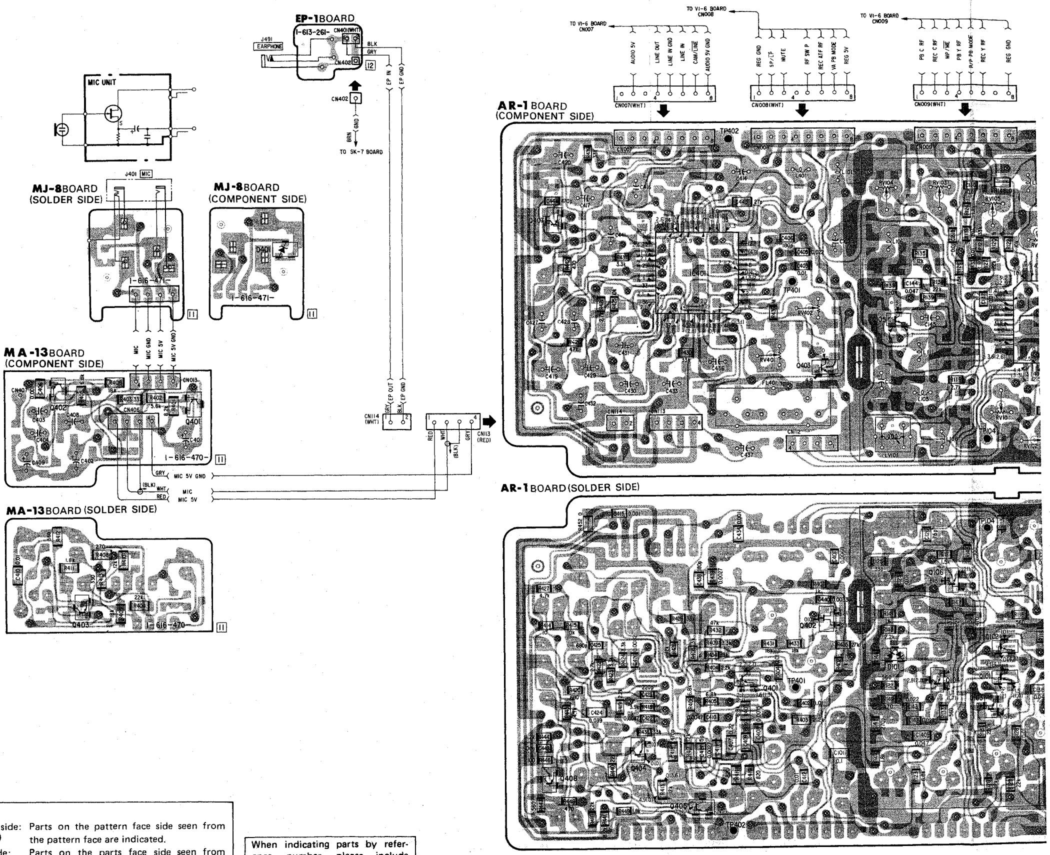
When indicating parts by reference number, please include the board name.

4-7. MA-13 (MIC AMP), MJ-8 (MIC INPUT), AR-1 (AUDIO PROCESS, VIDEO HEAD AMP), EP-1 (EARPHONE OUTPUT) PRINTED WIRING BOARDS

– Ref. No. AR-1, EP-1 BOARD : 5000 series, MA-13 BOARD : 7000 series –


AR-1
(Video Head Amp, Audio)
EP-1
(Earphone)


MA-13
(MIC AMP)
MJ-8
(MIC)


EP-1 BOARD
1-613-261-
CN401(WHT)
J491
EARPHONE
CN402
BLK
GRY
EP IN
EP GND
BRN
GND
TO SK-7 BOARD
MIC UNIT
J401 MIC
MJ-8 BOARD
(SOLDER SIDE)
MJ-8 BOARD
(COMPONENT SIDE)
1-616-471-
MIC
MIC GND
MIC 5V
MIC 5V GND
MA-13 BOARD
(COMPONENT SIDE)
1-616-470-
MA-13 BOARD (SOLDER SIDE)
MIC 5V GND
MIC
MIC 5V
EP OUT
EP GND
CN114
(WHT)
CN113
(RED)
RED
WHT
(BLK)
GRY
TO VI-6 BOARD
CN007
AUDIO 5V
LINE OUT
LINE IN GND
LINE IN
CAM/LINE
AUDIO 5V GND
CN007(WHT)
TO VI-6 BOARD
CN008
REG GND
SP/LP
MUTE
RF SW P
REC ATF RF
VA PB MODE
REG 5V
CN008(WHT)
TO VI-6 BOARD
CN009
PB C RF
REC C RF
MP/ME
PB Y RF
R/P PB MODE
REC Y RF
REG GND
CN009(WHT)
AR-1 BOARD
(COMPONENT SIDE)
TP402
TP401
AR-1 BOARD (SOLDER SIDE)

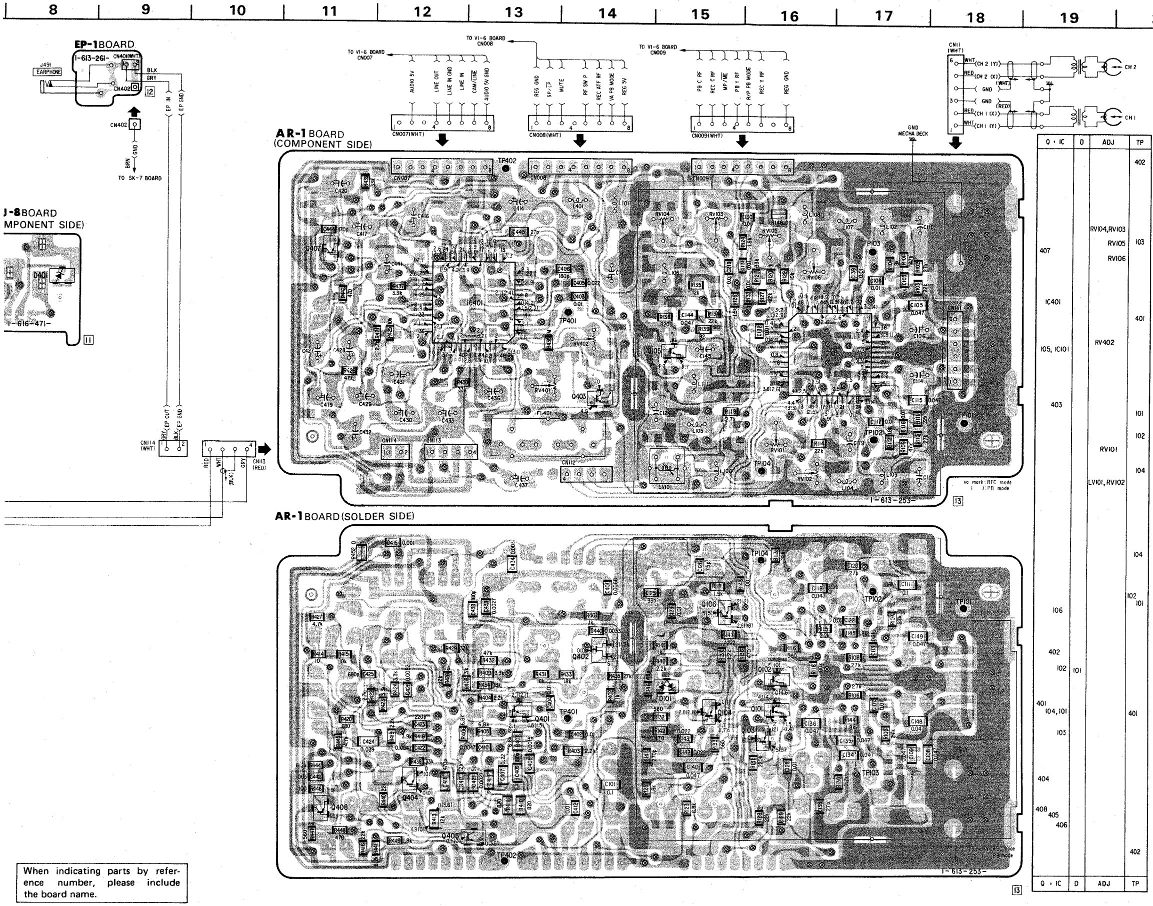
Note:

- ⊗ : Through hole.
- ▨ : pattern from the side which enables seeing.
- ▨ : B+ pattern
- ▨ : pattern of the rear side.

Caution:

Pattern face side: (Solder Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the part face are indicated.

When indicating parts by reference number, please include the board name.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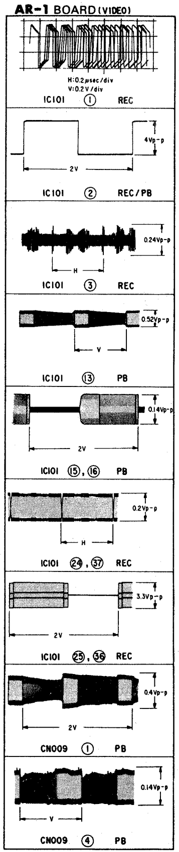
20
EP-1 BOARD
1-613-261-
J491
EARPHONE
CN401(WHT)
CN402
BLK
GRY
12
EP IN
EP GND
GND
BRN
TO SK-7 BOARD
J-8 BOARD
MPONENT SIDE)
D401
Q407
1-616-471-
11
CN114 (WHT)
EP OUT
EP GND
GRY
BLK
CN113 (RED)
RED
WHT
(BLK)
GRY
TO VI-6 BOARD CN007
AUDIO 5V
LINE OUT
LINE IN GND
LINE IN
CAM/LINE
AUDIO 5V GND
CN007(WHT)
TO VI-6 BOARD CN008
REG GND
SP/LP
MUTE
RF SW P
REC ATF RF
VA PB MODE
REG 5V
CN008(WHT)
TO VI-6 BOARD CN009
PB C RF
REC C RF
MP/ME
PB Y RF
R/P PB MODE
REC Y RF
REG GND
CN009(WHT)
CN11 (WHT)
WHT
RED
CH 2 (Y)
CH 2 (X)
GND
(WHT)
(RED)
CH 1 (X)
CH 1 (Y)
CH 2
CH 1
GND MECHA DECK
AR-1 BOARD (COMPONENT SIDE)
TP402
TP401
TP101
TP102
TP103
TP104
IC401
IC101
RV101
RV102
RV103
RV104
RV105
RV106
RV401
RV402
LV101
FL401
no mark : REC mode
( ) : PB mode
1-613-253-
13
AR-1 BOARD (SOLDER SIDE)
Q101
Q102
Q103
Q104
Q106
Q401
Q402
Q404
Q405
Q406
Q408
D101
1-613-253-
13

Q · IC	D	ADJ	TP
			402
		RV104,RV103	103
		RV105	
407			
		RV106	
IC401			
			401
105, IC101		RV402	
403			
			101
			102
		RV101	
			104
		LV101, RV102	
			104
			102
			101
106			
402			
102	101		
401			401
104,101			
103			
404			
408			
405			
406			
			402
Q · IC	D	ADJ	TP

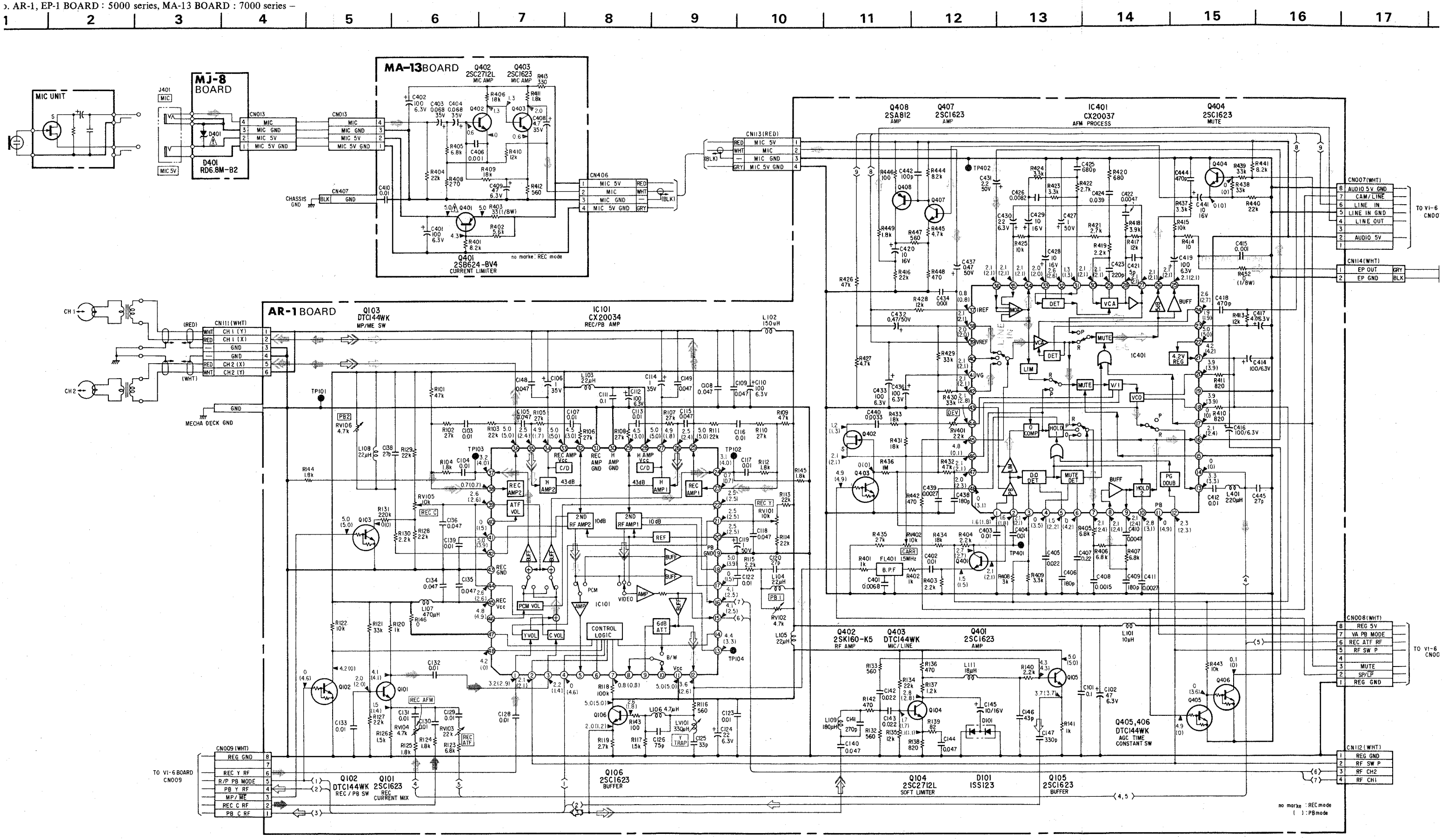
AR-1 BOARD (VIDEO)

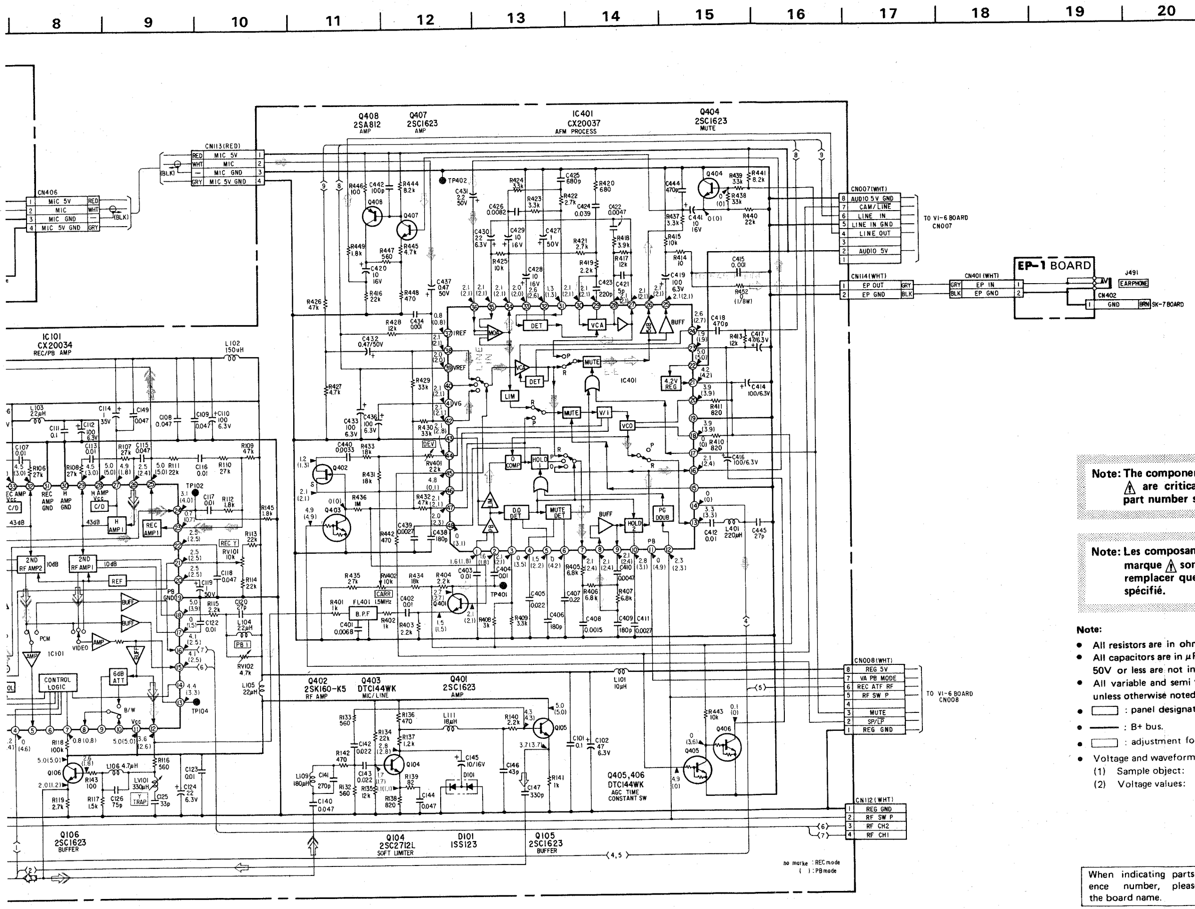


When indicating parts by reference number, please include the board name.

(MIC AMP), MJ-8 (MIC INPUT), AR-1 (AUDIO PROCESS, VIDEO HEAD AMP), EP-1 (EARPHONE OUTPUT) SCHEMATIC DIAGRAM

). AR-1, EP-1 BOARD : 5000 series, MA-13 BOARD : 7000 series –


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
MIC UNIT
J401 MIC
MJ-8 BOARD
D401 RD6.8M-B2
MIC 5V
CN013
MIC
MIC GND
MIC 5V
MIC 5V GND
MA-13 BOARD
Q402 2SC2712L MIC AMP
Q403 2SC1623 MIC AMP
Q401 2SB624-BV4 CURRENT LIMITER
no marke : REC mode
CHASSIS GND
CN407
CN406
CN113(RED)
Q408 2SA812 AMP
Q407 2SC1623 AMP
IC401 CX20037 AFM PROCESS
Q404 2SC1623 MUTE
CN007(WHT)
AUDIO 5V GND
CAM/LINE
LINE IN
LINE IN GND
LINE OUT
AUDIO 5V
TO VI-6 CN007
CN114(WHT)
EP OUT
EP GND
CH1
CH2
CN111(WHT)
CH 1 (Y)
CH 1 (X)
GND
CH 2 (X)
CH 2 (Y)
MECHA DECK GND
AR-1 BOARD
Q103 DTC144WK MP/ME SW
IC101 CX20034 REC/PB AMP
L102 150μH
TP101
TP102
TP103
TP104
TP401
TP402
IC101
IC401
CONTROL LOGIC
CN009(WHT)
REG GND
REC Y RF
R/P PB MODE
PB Y RF
MP/ME
REC C RF
PB C RF
TO VI-6 BOARD CN009
Q102 DTC144WK REC/PB SW
Q101 2SC1623 REC CURRENT MIX
Q106 2SC1623 BUFFER
Q402 2SK160-K5 RF AMP
Q403 DTC144WK MIC/LINE
Q401 2SC1623 AMP
Q104 2SC2712L SOFT LIMITER
D101 1SS123
Q105 2SC1623 BUFFER
Q405,406 DTC144WK AGC TIME CONSTANT SW
CN008(WHT)
REG 5V
VA PB MODE
REC ATF RF
RF SW P
MUTE
SP/LP
REG GND
TO VI-6 CN008
CN112(WHT)
REG GND
RF SW P
RF CH2
RF CH1
no marke : REC mode
( ) : PB mode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A
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C
D
E
F
G
H
I
J
Q408 2SA812 AMP
Q407 2SC1623 AMP
IC401 CX20037 AFM PROCESS
Q404 2SC1623 MUTE
CN113 (RED)
MIC 5V
MIC
MIC GND
MIC 5V GND
CN406
TP402
CN007 (WHT)
AUDIO 5V GND
CAM/LINE
LINE IN
LINE IN GND
LINE OUT
AUDIO 5V
TO VI-6 BOARD CN007
CN114 (WHT)
EP OUT
EP GND
CN401 (WHT)
EP IN
EP GND
EP-1 BOARD
J491
EARPHONE
CN402
GND
SK-7 BOARD
IC101 CX20034 REC/PB AMP
L102 150μH
DET
VCA
BUFF
MUTE
LIM
V/I
VCO
4.2V REG
COMP
HOLD
D.O DET
MUTE DET
PG DOUB
DEV
CARR
B.P.F
FL401 1.5MHz
TP401
TP102
TP104
REC AMP
H AMP
C/D
H AMP1
REC AMP1
2ND RF AMP2
2ND RF AMP1
REF
PCM
VIDEO
CONTROL LOGIC
6dB ATT
B/W
CN008 (WHT)
REG 5V
VA PB MODE
REC ATF RF
RF SW P
MUTE
SP/LP
REG GND
TO VI-6 BOARD CN008
CN112 (WHT)
REG GND
RF SW P
RF CH2
RF CH1
Q402 2SK160-K5 RF AMP
Q403 DTC144WK MIC/LINE
Q401 2SC1623 AMP
Q405,406 DTC144WK AGC TIME CONSTANT SW
Q106 2SC1623 BUFFER
Q104 2SC2712L SOFT LIMITER
D101 1SS123
Q105 2SC1623 BUFFER
no marks : REC mode
( ) : PB mode

- Signal path
  - ➡ : REC Y SIGNAL
  - ⇨ : PB Y SIGNAL
  - ➡ : REC CHROMA SIGNAL
  - ⇨ : PB CHROMA SIGNAL
  - ➡ : REC Y & CHROMA SIGNAL
  - ⇨ : PB Y & CHROMA SIGNAL

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note:

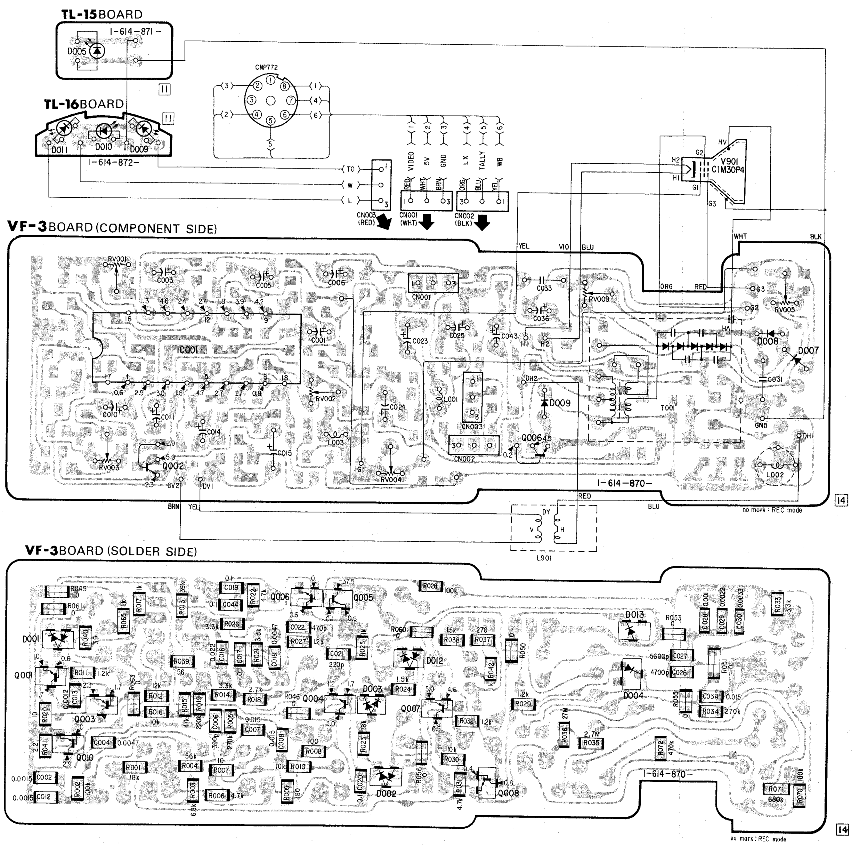
- All resistors are in ohms, 1/10W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted. 50V or less are not indicated except for electrolytic capacitors.
- All variable and semi fixed resistors have characteristic curve B, unless otherwise noted.
- ☐ : panel designation.
- ——— : B+ bus.
- ☐ : adjustment for repair.
- Voltage and waveform measuring conditions:
  - (1) Sample object: Pattern box color bars.
  - (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).

When indicating parts by reference number, please include the board name.

4-8. VF-3 (VIDEO AMP, VIDEO OUT, H. OUT, V. OUT), TL-15 (LED), TL-16 (LED) PRINTED WIRING BOARDS

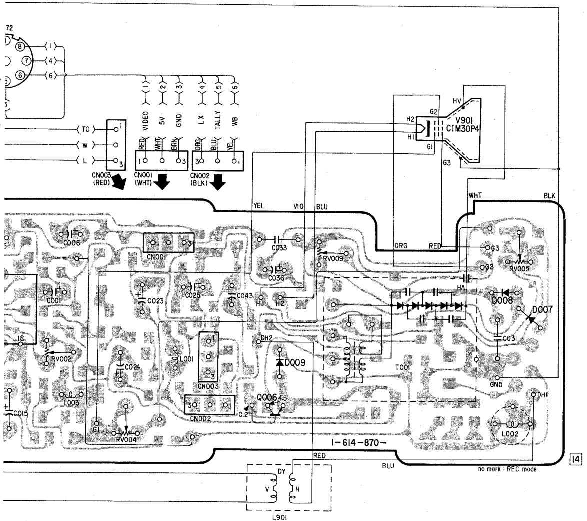
– Ref. No. VF-3, TL-15, TL-16 BOARD : 9000 series –

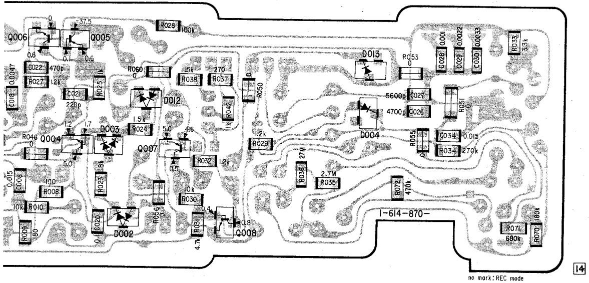
	Q, IC	D	ADJ
A		005	
B		011 009 010	
C			
D		008	RV001 RV006, RV005
E	IC001	007 006	RV002
F	002 009		RV003 RV004
G	006, 005		
H	001	013 001 012 004	
I	003 004 007 010 008	003 002	
J			



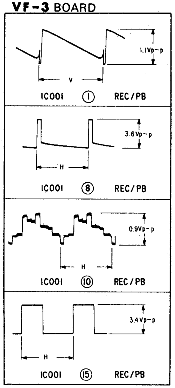
TL-15BOARD
1-614-871-
D005
TL-16BOARD
D011
D010
D009
1-614-872-
CNP772
VIDEO
5V
GND
LX
TALLY
WB
CN003 (RED)
CN001 (WHT)
CN002 (BLK)
V901 C1M30P4
VF-3BOARD (COMPONENT SIDE)
IC001
1-614-870-
DY
L901
no mark : REC mode
VF-3BOARD (SOLDER SIDE)
1-614-870-
no mark : REC mode

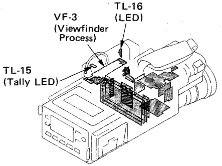
Note:
- ▨ : pattern from the side which en
- ▨ : B+ pattern


CN003 (RED)
CN001 (WHT)
CN002 (BLK)
TO
W
L
VIDEO
5V
GND
LX
TALLY
WB
RED
WHT
BRN
ORG
BLU
YEL
V901 C1M30P4
HV
G2
H2
H1
G1
G3
WHT
BLK
YEL
VIO
BLU
ORG
RED
C006
C033
C036
RV009
RV005
C001
C023
C025
C043
D008
D007
C031
RV002
C024
L001
D009
DH2
T001
CN003
CN002
Q006
L003
C015
RV004
GND
L002
1-614-870-
RED
BLU
DY
L901
no mark : REC mode
14


Q006
Q005
R028
100k
D013
R053
C028
C029
C030
R033
3.3k
C022
470p
R027
12k
R060
R038
R037
R050
C021
220p
R025
D012
C027
5600p
C026
4700p
R051
R042
D003
Q004
R024
Q007
D004
R055
C034
0.015
R034
270k
R046
R029
1.2k
R032
C018
R023
R036
R035
2.7M
R072
470k
C008
R008
100
R030
10k
R010
10k
R009
180
C020
D002
R031
Q008
R071
680k
R070
80k
1-614-870-
no mark : REC mode
14

VF-3 BOARD




TL-16 (LED)
VF-3 (Viewfinder Process)
TL-15 (Tally LED)

Note:

- ▨ : pattern from the side which enables seeing.
- ▨ : B+ pattern

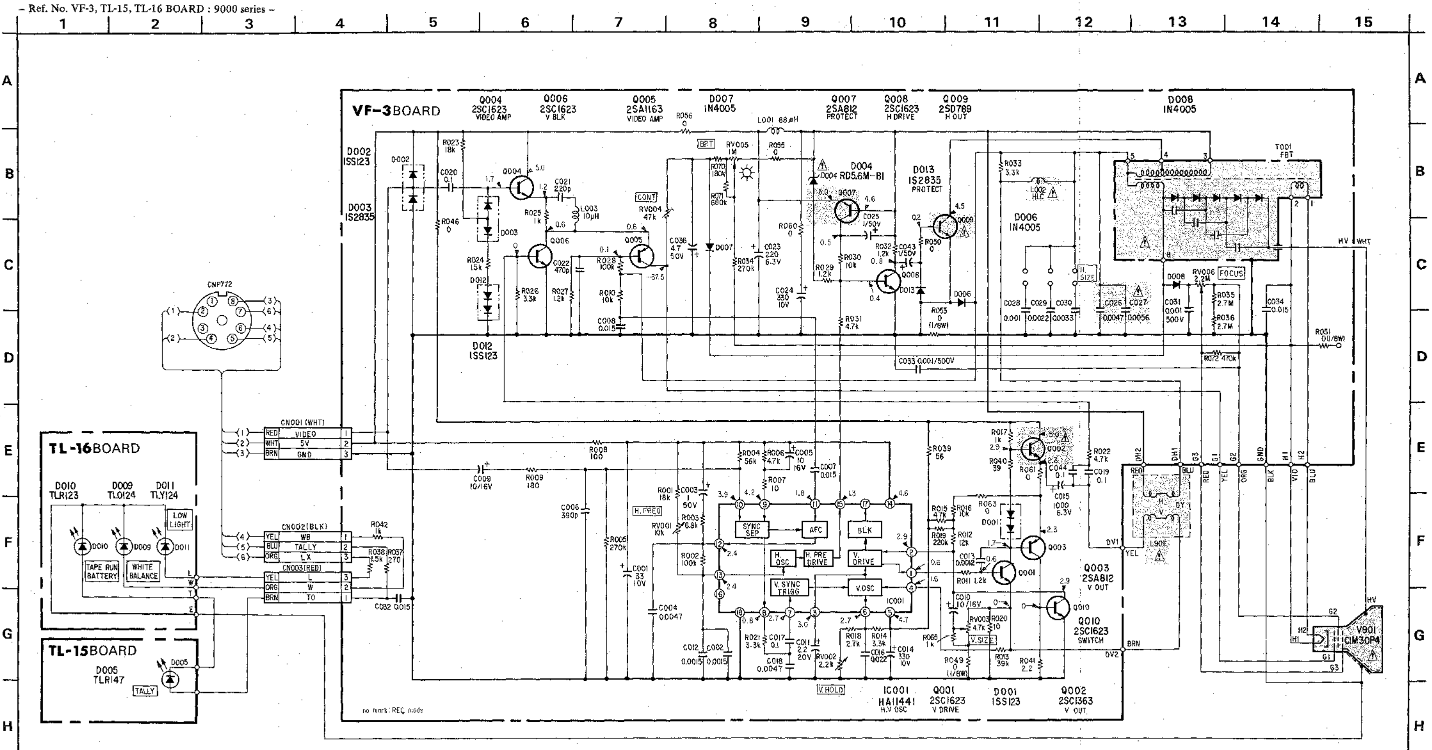
Caution:

Pattern face side: (Solder Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the part face are indicated.

When indicating parts by reference number, please include the board name.

VF-3 (VIDEO AMP, VIDEO OUT, H. OUT, V. OUT), TL-15 (LED), TL-16 (LED) SCHEMATIC DIAGRAM

– Ref. No. VF-3, TL-15, TL-16 BOARD : 9000 series –


VF-3BOARD
TL-16BOARD
TL-15BOARD
Q004 2SC1623 VIDEO AMP
Q006 2SC1623 V BLK
Q005 2SA1163 VIDEO AMP
D007 1N4005
Q007 2SA812 PROTECT
Q008 2SC1623 H DRIVE
Q009 2SD789 H OUT
D008 1N4005
D002 1SS123
D003 1S2835
D012 1SS123
D004 RD5.6M-B1
D013 1S2835 PROTECT
D006 1N4005
T001 FBT
L001 68μH
L003 10μH
L002 HLC
RV005 1M BRT
RV004 47k CONT
RV006 2.2M FOCUS
H SIZE
CNP772
CN001 (WHT)
VIDEO
5V
GND
CN002 (BLK)
WB
TALLY
LX
CN003 (RED)
L
W
TO
D010 TLR123
D009 TLO124
D011 TLY124
LOW LIGHT
TAPE RUN BATTERY
WHITE BALANCE
D005 TLR147
TALLY
H. FREQ
SYNC SEP
AFC
BLK
H. OSC
H. PRE DRIVE
V. DRIVE
V. SYNC TRIGG
V. OSC
IC001
V. HOLD
V. SIZE
IC001 HA11441 H.V OSC
Q001 2SC1623 V DRIVE
D001 1SS123
Q002 2SC1363 V OUT
Q003 2SA812 V OUT
Q010 2SC1623 SWITCH
DY
L901
V901 CIM30P4
HV
HV WHT
G1
G2
G3
H1
H2
DH1
DH2
DV1
DV2
no mark : REC mode

Note:

- All resistors are in ohms, 1/10W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted. 50V or less are not indicated except for electrolytic capacitors.
- All variable and semi fixed resistors have characteristic curve B, unless otherwise noted.
- ☐ : panel designation.

- ▬▬ : B+ bus.
- ☐ : adjustment for repair.
- Voltage and waveform measuring conditions:
  - (1) Sample object: Pattern box color bars.
  - (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).

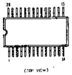
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

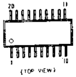
When indicating parts by reference number, please include the board name.

4-9. SEMICONDUCTORS

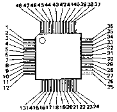
CX7930
CX7930-1
CX7930A


28
15
1
14
(top view)

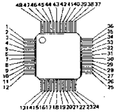
CX7991


20
11
1
10
(TOP VIEW)

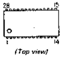
CX20030
CX20031
CX20032
CX20053
CX20055
CX20056
CX23014
CX23047B
CX23054
MB88505-238M


48 47 46 45 44 43 42 41 40 39 38 37
1 2 3 4 5 6 7 8 9 10 11 12
36 35 34 33 32 31 30 29 28 27 26 25
13 14 15 16 17 18 19 20 21 22 23 24

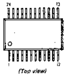
CX20034
CX20037
CX20151


48 47 46 45 44 43 42 41 40 39 38 37
1 2 3 4 5 6 7 8 9 10 11 12
36 35 34 33 32 31 30 29 28 27 26 25
13 14 15 16 17 18 19 20 21 22 23 24

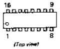
CX20035
CX20036
CX22022


28
15
1
14
(Top view)

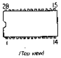
CX20114


24
13
1
12
(Top view)

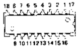
CX20115
CX22021
MB7052PF


16
9
1
8
(Top view)

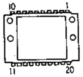
CX23039


28
15
1
14
(Top view)

HA11441


18 8 7 6 5 4 3 2 1 17
9 10 11 12 13 14 15 16

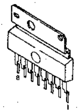
ICX-018K



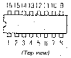
MB3763PF
SN75361AP

8 7 6 5
1 2 3 4
(Top view)

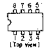
MB3763PS



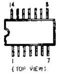
MB88201-170N
TC4526BF


16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
(Top view)

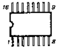
MMH0026CP1


8 7 6 5
1 2 3 4
[Top view]

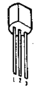
TC4013BF
TC4066BF
TC4069UBF
TC504013BF


14
8
1
7
(TOP VIEW)

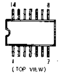
TC4028BF
TC4052BF



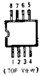
TL431CLP
TL431CLPB



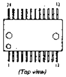
µPC324G2


14
8
1
7
(TOP VIEW)

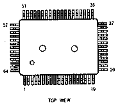
µPC358G2
µPC393G2


8 7 6 5
1 2 3 4
(TOP VIEW)

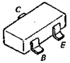
µPD6107G


24
13
1
12
(Top view)

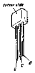
µPD7503G-324


51
33
52
32
64
20
1
19
TOP VIEW

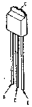
2SA812
2SA1122
2SA1162
2SA1163
2SA1179
2SA1226
2SB624-BV4
2SC1621
2SC1623
2SC2223
2SC2412
2SC2712
2SC2812
2SC3052
2SD596
2SD1048
DTA114EK
DTA114ES
DTA124EK
DTA144EK
DTA144WK
DTC114EK
DTC143TK
DTC144EK
DTC144WK



2SA1175

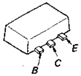

letter side
E C B

2SA1242LB
2SA1385

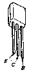


2SB733
2SB733-4
2SB734
2SD789

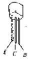
2SB798
2SD999
2SD1005



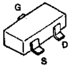
2SC633-SP8



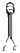
2SC1363
2SC1364
2SC1475
2SC1475-13



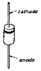
2SK94
2SK160



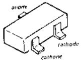
NJL7141E



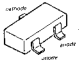
1N4005
1S1555


cathode
anode

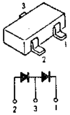
1S2835
DAP202K
MA151WA


anode
cathode
cathode

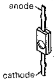
1S2837
DAN202K
MA151WK


cathode
anode
anode

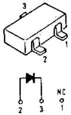
1SS123
DA204K
MA153



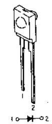
1T32


anode
cathode

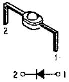
E10DS2
E10QS03
RD3.9M-B1
RD3.9M-B2
RD5.1M-B1
RD5.1M-B2
RD5.6M-B1
RD5.6M-B2
RD6.8M-B1
RD6.8M-B2
RD6.8M-B3
RD9.1M-B1
RD12M-B1
RD12M-B2
RD12M-B3



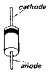
GL-450S



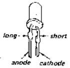
GL-1EG102
GL-1HY102
GL-1PR102



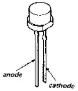
HZ4ALL
HZ5BLL
HZ5CLL
RD3.3E-L1
RD4.3E-B2
RD6.2E-L2


cathode
anode

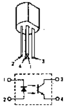
TLO123
TLO124
TLR123
TLR124
TLY124


long
short
anode
cathode

TLR147


anode
cathode

NJL5141E



SECTION 5
EXPLODED VIEWS

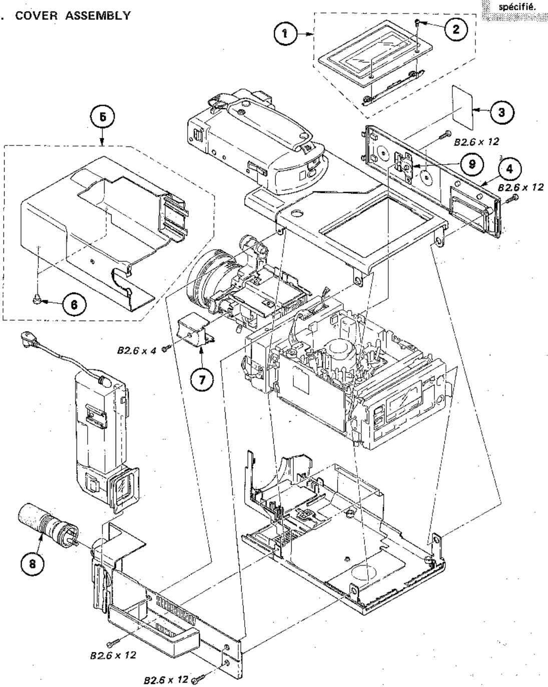
NOTE:

- Itmes with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part numer specified.

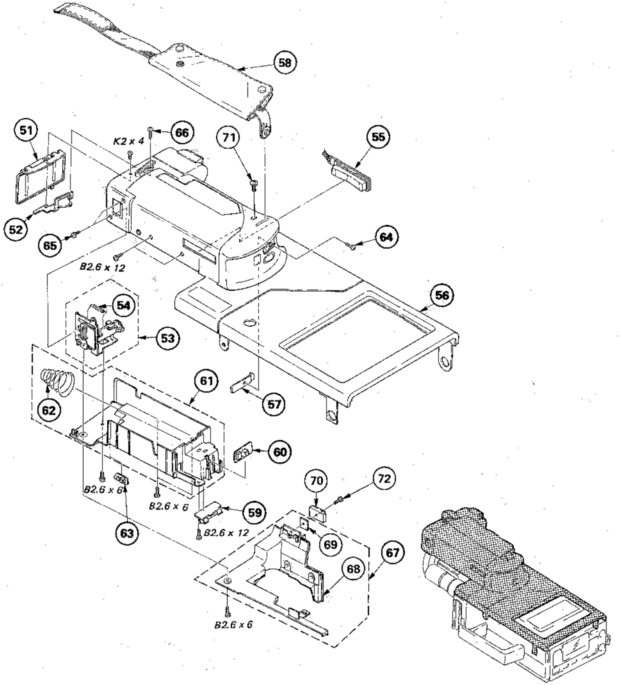
Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

5-1. COVER ASSEMBLY



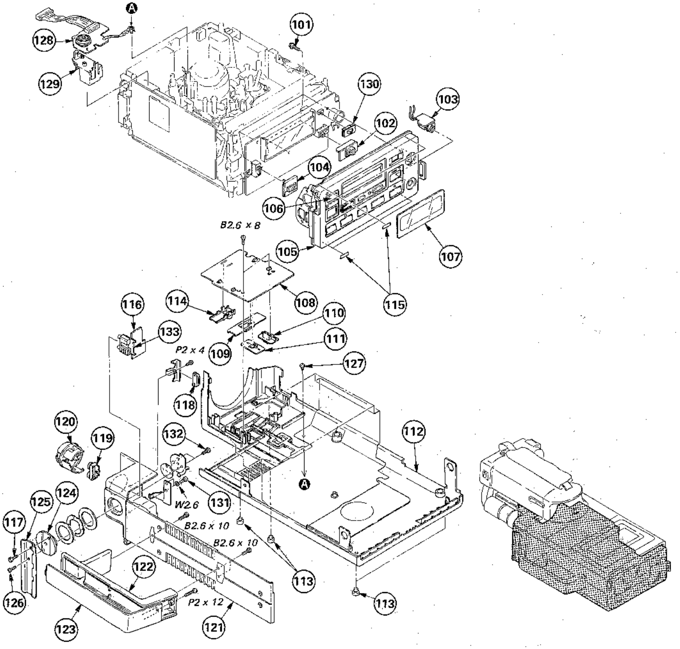
No.	Part No.	Description	Remark
1	X-3686-663-1	LID ASSY, CASSETTE	2
2	3-686-804-01	SCREW (2X5), TAPPING	
3	*3-693-285-01	LABEL, MODEL NUMBER	
4	X-3686-650-1	CABINET (LOWER) ASSY	9
5	X-3686-684-1	COVER ASSY, CAMERA HEAD	6
6	3-688-931-01	FOOT, RUBBER	
7	3-696-008-01	CAP, CATCHER, RAY	
8	8-810-510-90	MICROPHONE, BUILT-IN (C-2008 SET)	
9	3-688-936-01	SCREW, TRIPOD	

5-2. CABINET (LEFT) ASSEMBLY


58
51
66
K2 x 4
71
55
52
65
64
B2.6 x 12
56
54
53
61
62
57
60
70
72
B2.6 x 6
B2.6 x 6
59
B2.6 x 12
63
69
67
68
B2.6 x 6

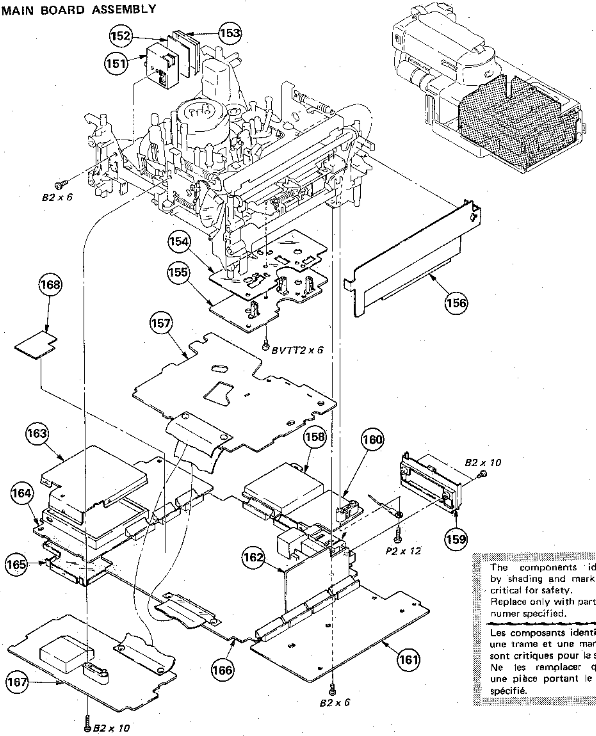
No.	Part No.	Description	Remark
51	X-3686-613-1	LID ASSY, BATTERY	
52	3-688-926-01	BRACKET (FRONT), GRIP	
53	X-3686-560-1	LOCK ASSY, BATTERY	54
54	3-570-898-00	SPRING, TENSION	
55	1-554-944-11	SWITCH, PUSH (START/STOP) S903	
56	X-3686-651-1	CABINET (LEFT) SUB ASSY	51, 52, 57, 58, 64, 66, 71
57	3-696-035-01	BRACKET, BELT	
58	3-696-007-01	BELT, GRIP	
59	*1-613-263-11	FU-26 BOARD	
60	*1-616-585-11	SS-54 BOARD	
61	X-3686-664-1	HOLDER ASSY, BATTERY	62
62	3-686-775-01	SPRING	
63	*1-616-586-11	SS-55 BOARD	
64	3-686-999-31	SCREW (2.6X12) (C LOCK), (+) B	
65	3-686-999-11	SCREW (2.6X6) (C LOCK), (+) B	
66	3-688-901-01	SCREW (3X7) (C LOCK), (+) B	
67	X-3686-672-1	CABINET (YF) ASSY	68, 69
68	3-696-010-01	CABINET (YF)	
69	*3-693-298-01	BRACKET, RUBBER FOOT	
70	3-693-297-01	FOOT, RUBBER, RADIATION	
71	3-696-059-01	SCREW (M2.6X12) (C LOCK), +K	
72	3-686-999-01	SCREW (2.6X4) (C LOCK), (+) B	

5-3. CONTROL PANEL, CABINET (UPPER, RIGHT) ASSEMBLY


A
101
128
129
130
103
102
104
106
B2.6 x 8
105
107
115
116
114
108
110
133
111
P2 x 4
109
127
118
120
119
132
112
125
124
117
W2.6
131
B2.6 x 10
B2.6 x 10
122
113
126
P2 x 12
113
123
121

No.	Part No.	Description	Remark
101	3-669-480-11	+ PTPWH 2	
102	3-686-785-01	BUTTON, REC	
103	*1-613-261-11	EP-1 BOARD	
104	3-686-798-01	KNOB, EJECT	
105	3-686-981-11	PANEL, CONTROL	
106	3-686-833-02	BUTTON, POWER	
107	3-686-786-01	WINDOW, LCD	
108	*A-7060-202-A	RR-10 BOARD, COMPLETE	
109	3-693-268-01	KNOB WB	
110	3-688-933-01	KNOB, IRIS	
111	3-688-932-01	KNOB, POWER, C	
112	X-3686-666-1	CABINET (RIGHT) SUB ASSY	113
113	3-688-931-01	FOOT, RUBBER	
114	3-693-267-01	KNOB, F	
115	*3-880-474-00	CUSHION, 15X5X0.3	
116	*A-7060-200-A	MA-13 BOARD, COMPLETE	
117	3-696-038-01	SCREW (M2.6X4), SPECIAL HEAD	
118	*3-688-979-01	CUSHION (X), MICROPHONE	
119	*3-686-776-01	CUSHION (A), MICROPHONE	
120	3-688-996-01	HOLDER, MICROPHONE	
121	X-3686-665-1	CABINET (UPPER) SUB ASSY	117, 122-126, 131,132
122	3-688-934-11	HANDLE (1)	
123	3-688-935-01	HANDLE (2)	
124	*3-693-209-11	TABLE, ROTARY	
125	*3-696-064-01	BRACKET, VF	
126	3-696-039-01	SCREW (2.6X4) (C LOCK), +P	
127	3-703-502-31	SCREW	
128	*1-613-262-11	EF-2 BOARD	
129	*3-688-953-01	HOLDER, EF	
130	3-686-979-01	KNOB, S/L	
131	3-686-999-01	SCREW (2.6X4) (C LOCK), (+) B	
132	3-686-999-11	SCREW (2.6X6) (C LOCK), (+) B	
133	*1-616-471-11	MJ-8 BOARD	

5-4. MAIN BOARD ASSEMBLY

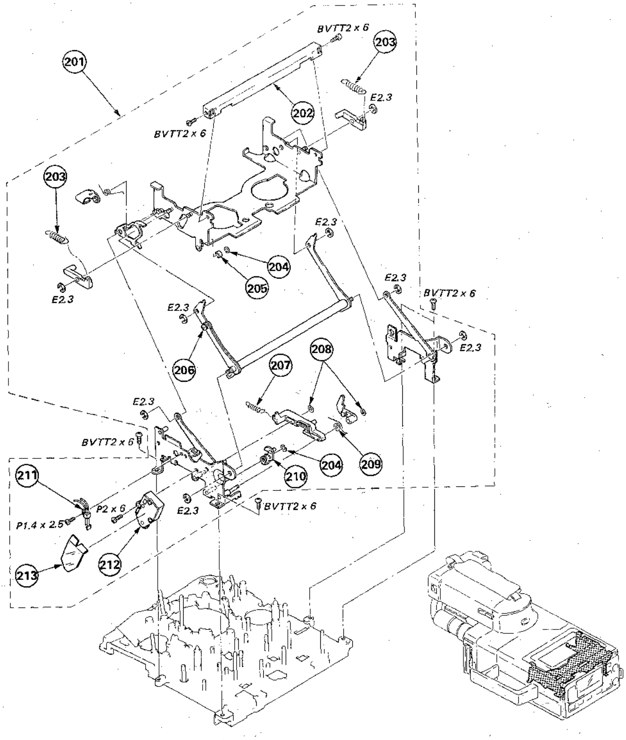


The components identified by shading and mark ⚠ are critical for safety.
Replace only with part numer specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

No.	Part No.	Description	Remark
151	*3-686-955-01	CASE (MAIN), SHIELD, FE	
152	*A-7060-096-A	FE-2 BOARD, COMPLETE	
153	*3-686-953-02	LID, SHIELD CASE, FE	
154	*3-686-948-01	INSULATOR, RS	
155	*A-7060-095-A	RS-2 BOARD, COMPLETE	
156	*3-686-947-01	BLIND, CASSETTE COMPARTMENT	
157	*A-7060-193-A	MC-4 BOARD, COMPLETE	
158	⚠1-464-376-21	CONVERTER, DC-DC DR901	
159	*3-688-908-01	COVER, M	
160	*A-7060-097-A	HS-4 BOARD, COMPLETE	
161	*A-7060-196-A	SK-7 BOARD, COMPLETE	
162	*A-7060-098-A	DS-10 BOARD, COMPLETE	
163	*3-686-954-01	LID, UPPER, SHIELD CASE, AR	
164	*A-7060-018-A	AR-1 BOARD, COMPLETE	
165	*X-3686-585-1	LID ASSY, BOTTOM, SHIELD CASE	
166	*A-7060-213-A	VI-6 BOARD, COMPLETE	168
167	*A-7060-023-A	SV-13 BOARD, COMPLETE	
168	*A-7070-142-A	ED-12 BOARD, COMPLETE	

5-5. CASSETTE COMPARTMENT ASSEMBLY


201
202
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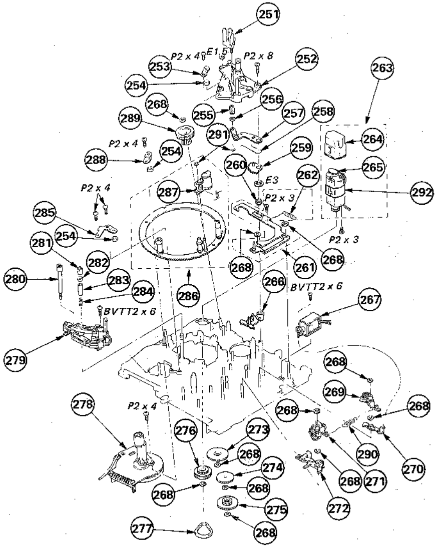
207
208
209
210
211
212
213
BVTT2 x 6
BVTT2 x 6
BVTT2 x 6
BVTT2 x 6
BVTT2 x 6
E2.3
E2.3
E2.3
E2.3
E2.3
E2.3
E2.3
E2.3
P2 x 6
P1.4 x 2.5

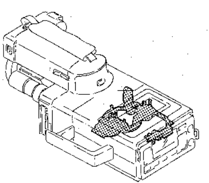
No.	Part No.	Description	Remark
201	A-7040-005-A	CASSETTE COMPARTMENT ASSY	202-213
202	3-686-718-01	REINFORCEMENT	
203	3-686-883-01	SPRING, TENSION	
204	3-578-265-11	WASHER, STOPPER	
205	*3-686-693-01	ROLLER, LOCK	
206	3-672-561-00	+PSW 2X4	
207	3-696-047-01	SPRING, TENSION	
208	3-669-465-00	WASHER (1.5), STOPPER	
209	3-686-694-01	SPRING, TORSION	
210	*X-3686-541-1	CLAW ASSY, LOCK	
211	1-553-226-00	SWITCH, LEAF (CASSETTE LOCK) S901	
212	*3-681-528-00	DAMPER	
213	*3-686-937-01	INSULATOR, DAMPER	

5-6. CHASSIS ASSEMBLY 1


251
P2 x 4
E1.5
P2 x 8
252
253
254
263
268
255
256
257
258
289
291
264
P2 x 4
254
288
259
260
265
E3
262
292
P2 x 4
287
P2 x 3
285
254
P2 x 3
281
282
268
261
268
280
283
266
BVTT2 x 6
284
286
267
BVTT2 x 6
279
268
269
278
P2 x 4
268
268
276
273
268
290
270
274
268
271
268
272
268
275
277
268

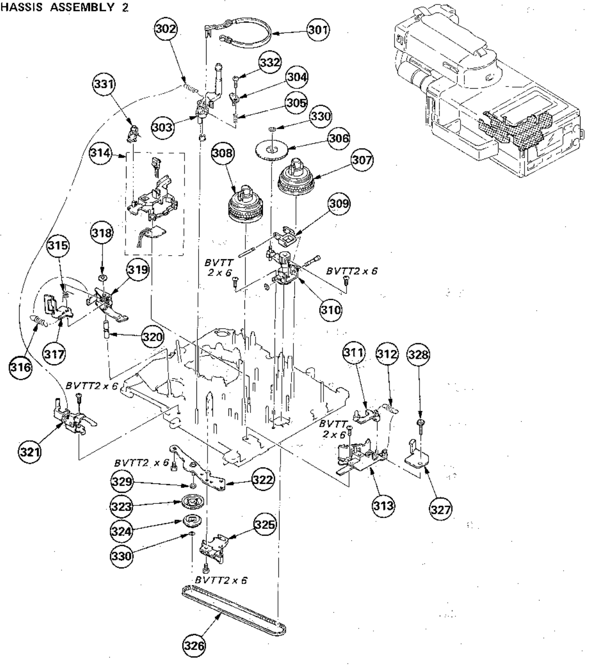
The components identified by shading and mark ⚠ are critical for safety.
Replace only with part numer specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.



No.	Part No.	Description	Remark
251	X-3686-502-1	BASE ASSY, GUIDE	
252	X-3686-577-1	CHASSIS ASSY, GUIDE, SLANT	
253	*3-686-503-01	RETAINER, ROLLER	
254	3-697-538-01	ROLLER, RING	
255	3-686-663-01	WASHER, STOPPER, 2 GANG	
256	3-701-436-21	WASHER, POLYEHTHYLENE	
257	X-3686-537-1	ARM ASSY	
258	3-686-701-01	SPRING	
259	X-3686-535-1	GEAR ASSY, SECTOR	
260	3-686-537-01	RETAINER, LOCK SLIDER	
261	*A-7040-014-A	SLIDER ASSY, LOCK	262
262	3-686-887-01	SPRING, TENSION	
263	A-7040-009-A	MOTOR ASSY, L (LOADING) M901	264, 265
264	*3-686-757-01	CAP, SHIELD, L MOTOR	
265	1-161-073-11	CAP, CERAMIC 0.033MF C902	
266	*3-686-636-01	ARM, T.S RELEASE	
267	⚠1-454-377-11	SOLENOID, PLUNGER PM901	
268	3-669-465-00	WASHER (1.5), STOPPER	
269	X-3686-574-1	BRAKE ASSY, MAIN, TAKE-UP	
270	*3-686-635-01	ARM, P	
271	X-3686-573-1	BRAKE ASSY, MAIN, SUPPLY	
272	*3-686-629-01	SLIDER, SELECTION, UPPER & LOWER	
273	3-686-508-01	GEAR, NO.2	
274	3-686-545-01	GEAR, NO.3	
275	3-686-544-01	GEAR, NO.4	
276	X-3686-514-1	GEAR ASSY, NO.1	
277	3-686-546-01	BELT, L- MOTOR	
278	8-838-077-01	MOTOR, DC (BHF-2800B) (CAPSTAN) M902	
279	A-7040-054-A	GUIDE (P) ASSY, ENTRANCE	
280	3-686-561-01	SCREW, DRUM GUARD	
281	3-686-724-01	NUT, GUIDE	
282	*3-686-894-01	FLANGE, #3 #4 GUIDE	
283	3-686-912-01	GUIDE, #3 #4	
284	3-669-666-00	SPRING, COMPRESSION	
285	*3-686-675-01	STOPPER, RING	
286	A-7040-007-A	RING ASSY, LOADING	287, 291
287	X-3686-576-1	ARM ASSY, PINCH ROLLER	
288	*3-686-911-01	PLATE, TOP, ROLLER	
289	3-697-518-01	GEAR, NO.10	
290	3-686-882-01	SPRING, TENSION	
291	3-686-559-01	WASHER	
292	3-691-920-01	PLATE, SHIELD, L.MOTOR	

5-7. CHASSIS ASSEMBLY 2


301
302
331
332
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303
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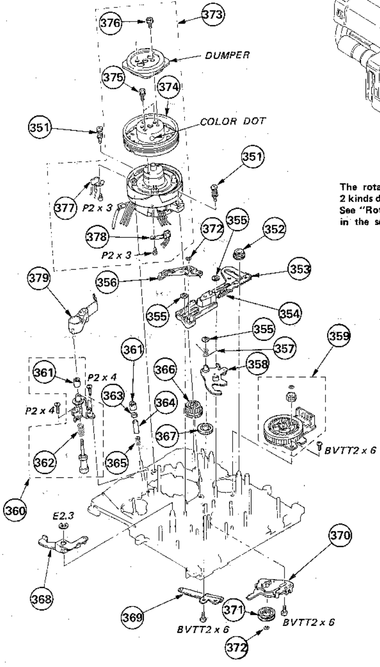
306
314
308
307
309
318
315
319
BVTT 2 x 6
BVTT2 x 6
310
320
317
316
311
312
328
BVTT2 x 6
321
BVTT 2 x 6
BVTT2 x 6
322
329
323
313
327
324
325
330
BVTT2 x 6
326

No.	Part No.	Description	Remark
301	X-3686-531-1	BAND ASSY, TENSION REGULATOR	
302	3-686-918-01	SPRING, TENSION	
303	X-3686-532-5	ARM SUB ASSY, TENSION REGULATOR	
304	*X-3686-523-1	PLATE ASSY, TENSION REGULATOR	
305	3-669-666-00	SPRING, COMPRESSION	
306	X-3686-526-1	GEAR (B) ASSY, DRIVING	
307	X-3686-572-2	TABLE ASSY REEL, TAKE-UP	
308	X-3686-571-2	TABLE ASSY, REEL, SUPPLY	
309	*3-686-630-01	ARM(B), SELECTION, UPPER & LOWER	
310	X-3686-581-1	ARM COMPLETE ASSY, DRIVING	
311	*3-686-637-01	BRAKE (S), SOFT	
312	3-696-082-01	SPRING, TENSION	
313	*3-686-760-01	GUIDE, BAND	
314	*A-7070-024-A	LD-1 BOARD, COMPLETE	
315	3-686-568-01	SPRING, TORSION	
316	3-686-885-01	SPRING, TENSION	
317	*3-686-641-01	ARM, PINCH PRESS	
318	3-669-465-00	WASHER (1.5), STOPPER	
319	*3-686-660-01	ARM, PINCH LIMITER	
320	*3-686-567-01	SLEEVE, PINCH PRESS	
321	*X-3686-525-1	HOOK ASSY, SPRING	
322	*X-3686-529-1	BASE ASSY, CHANGE GEAR	
323	X-3686-520-1	GEAR ASSY, CHANGE	
324	*3-686-596-01	FLANGE, GEAR	
325	*3-686-648-01	HOLDER, WIRE	
326	3-686-646-01	BELT, TIMIMG	
327	*3-686-991-01	STOPPER, REEL TABLE	
328	3-669-480-11	+ PTPWH 2	
329	3-701-436-11	WASHER, 1.6	
330	3-686-559-01	WASHER	
331	X-3686-590-1	BRAKE ASSY, REV	
332	3-697-546-01	SCREW (+-M2.6X6), SPECIAL	

5-8. CHASSIS ASSEMBLY 3


376
373
DUMPER
375
374
351
COLOR DOT
351
377
P2 x 3
378
P2 x 3
372
355
352
353
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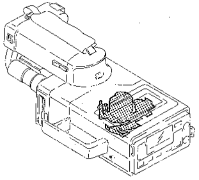
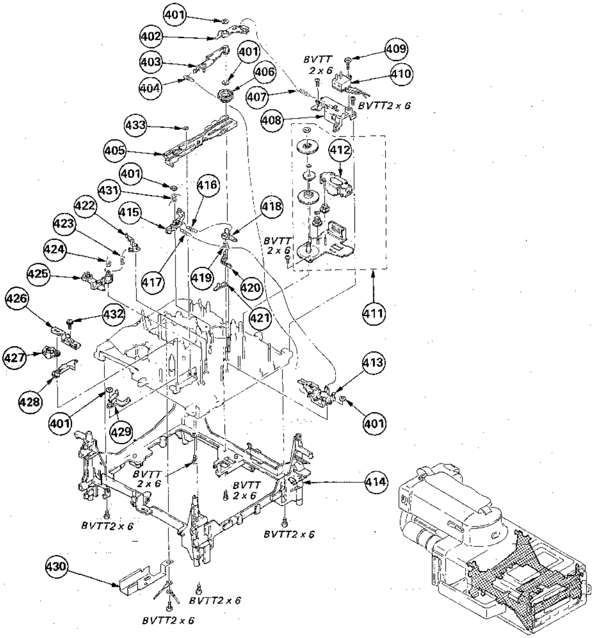
355
354
355
357
359
361
358
361
P2 x 4
366
363
P2 x 4
364
367
BVTT2 x 6
362
365
360
E2.3
370
368
371
369
BVTT2 x 6
BVTT2 x 6
372



**The rotary upper drum is divided into 2 kinds depending on color dots.
See "Rotary Upper Drum Replacement" in the service manaul, when replacing.**

No.	Part No.	Description	Remark
351	X-3686-569-1	SCREW ASSY, FITTING	
352	3-686-702-01	GEAR, DRIVING, GUIDE, SLANT	
353	*X-3686-548-2	SLIDER SUB ASSY, L	
354	3-686-886-01	SPRING, TENSION	
355	3-669-465-00	WASHER (1.5), STOPPER	
356	*X-3686-518-1	ARM ASSY	
357	3-686-540-01	SPRING, TORSION	
358	X-3686-579-1	CHANGE ASSY, DRIVE	
359	X-3686-549-1	L-SW ASSY	
360	A-7040-053-A	GUIDE BLOCK COMPLETE ASSY, #5	361, 362
361	3-686-724-01	NUT, GUIDE	
362	3-686-889-01	SPRING, COMPRESSION	
363	*3-686-894-01	FLANGE, #3 #4 GUIDE	
364	3-686-912-01	GUIDE, #3 #4	
365	3-669-666-00	SPRING, COMPRESSION	
366	3-686-539-01	GEAR, NO.9	
367	3-686-535-01	GEAR, NO.8	
368	*X-3686-509-1	LEVER ASSY, PINCH PRESS	
369	1-535-535-11	TERMINAL, SHAFT GROUND	
370	X-3686-521-1	BASE ASSY, IDLER	
371	X-3686-522-1	IDLER ASSY	
372	3-686-559-01	WASHER	
373	A-7048-003-A	DRUM ASSY (DVH-05A-R)	374-378
374	A-7049-004-A	DRUM ASSY, ROTARY UPPER (DVR-05-R) COLOR DOT: BLUE or RED	
	A-7049-017-A	DRUM ASSY, ROTARY UPPER (DVR-05-R-(0)) COLOR DOT: BLACK or GREEN	
375	3-686-403-01	SCREW (2X5), BOLT WASHER	
376	3-686-422-01	WASHER (2X2.7), BOLT, HOLE	
377	1-806-975-11	SENSOR, DEW CONDENSATION	
378	1-806-911-11	HEATER	
379	*3-688-917-01	STOPPER, TAPE	

5-9. CHASSIS ASSEMBLY 4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BVTT 2 x 6
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BVTT2 x 6
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431
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422
415
418
423
BVTT 2 x 6
424
425
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419
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421
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427
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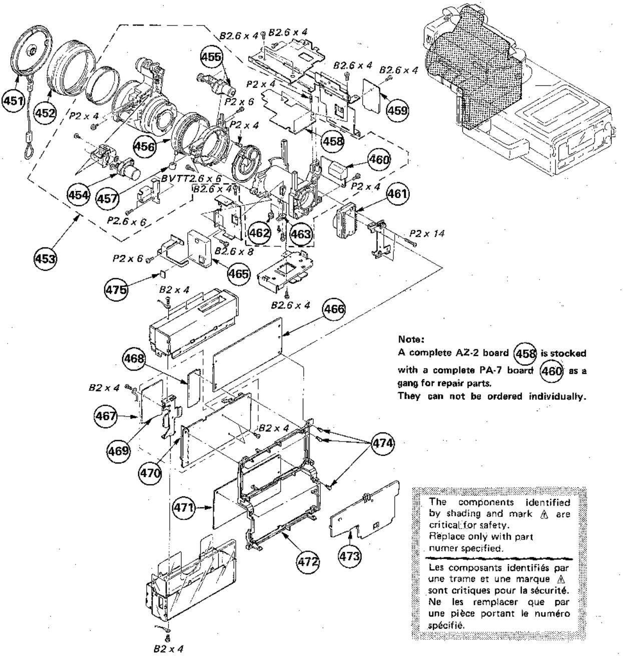
428
401
429
401
BVTT 2 x 6
BVTT 2 x 6
414
BVTT2 x 6
BVTT2 x 6
430
BVTT2 x 6
BVTT2 x 6

No.	Part No.	Description	Remark
401	3-669-465-00	WASHER (1.5), STOPPER	
402	X-3686-511-1	BRAKE ASSY, T.S	
403	*X-3686-528-1	ARM ASSY, B RELEASE	
404	3-686-903-01	SPRING, TENSION	
405	*3-686-657-08	SLIDER, M	
406	3-686-909-01	GEAR, MODE OUTPUT	
407	3-686-907-01	SPRING, TENSION	
408	*3-686-759-01	COVER, CONTROL MOTOR	
409	3-669-480-11	+ PTPWH 2	
410	1-554-942-11	SWITCH, PUSH (RECOG) S902	
411	A-7040-003-A	M-SW ASSY	412
412	8-835-110-01	MOTOR, DC (DNR-5301A) (CONTROL) M903	
413	*3-686-656-01	SLIDER, B RELEASE	
414	X-3686-554-2	FRAME ASSY, MOLD	
415	*3-686-634-01	ARM, RL	
416	3-686-906-01	SPRING, TENSION	
417	3-686-904-01	SPRING, TENSION	
418	X-3686-510-1	BRAKE ASSY, REW	
419	3-686-617-01	SPRING	
420	*3-686-638-01	ARM, RVS	
421	*3-686-580-01	ARM, SET UP	
422	3-686-996-01	BRAKE (S), HARD	
423	3-686-905-02	SPRING, TENSION	
424	3-686-603-01	SPRING	
425	*3-686-644-01	ARM, BAND	
426	*3-686-642-01	PLATE, ADJUSTMENT, BAND	
427	*3-686-755-01	DISK, EJECT	
428	*3-686-643-01	ARM, MODE	
429	*X-3686-530-1	ARM (A) ASSY, SELECTION	
430	*3-686-966-01	PLATE, SHIELD, HEAD LEAD	
431	3-686-579-01	SPRING	
432	3-686-528-01	SCREW (2X6), +	
433	3-686-559-01	WASHER	

5-10. CAMERA BLOCK ASSEMBLY


451
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472
473
474
475
B2.6 x 4
B2.6 x 4
B2.6 x 4
B2.6 x 4
P2 x 4
P2 x 6
P2 x 4
P2 x 4
BVTT2.6 x 6
B2.6 x 4
P2 x 4
P2.6 x 6
P2 x 14
B2.6 x 8
P2 x 6
B2 x 4
B2.6 x 4
B2 x 4
B2 x 4
B2 x 4

Note:
A complete AZ-2 board ㊽ is stocked with a complete PA-7 board (460) as a gang for repair parts.
They can not be ordered individually.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part numer specified.

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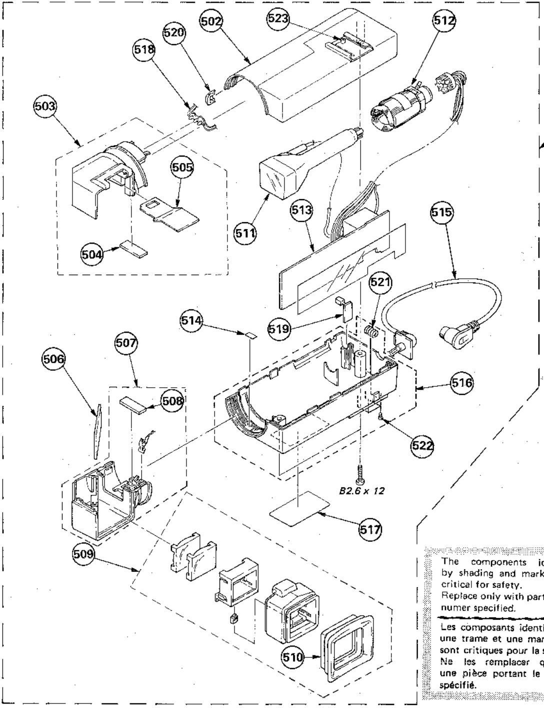
No.	Part No.	Description	Remark
451	X-3686-677-1	CAP ASSY, HOOD	
452	3-696-004-01	HOOD	
453	1-547-183-11	LENS, ZOOM (VCL-1206YE)	454-458, 460, 462, 463
454	8-835-127-01	MOTOR, F (DNR-6300D) M906	
455	3-707-173-01	MOTOR UNIT, Z M904	
456	3-707-226-01	ZOOM RING UNIT	
457	3-707-225-01	CAP, ZOOM LEVER	
458	*A-7060-204-A	AZ-2 BOARD, COMPLETE	
459	*A-7060-201-A	ZM-3 BOARD, COMPLETE	
460	*A-7060-204-A	PA-7 BOARD, COMPLETE	
461	8-750-010-22	CCD IMAGER BLOCK (IU018-K1AA)	
462	*3-707-164-01	BRACE, FB ADJUSTMENT	
463	*3-707-168-01	BRACKET, ADJUSTMENT, FB	
464	3-696-066-01	SPRING	
465	⚠ 1-464-377-21	CONVERTER, DC-DC (CAMERA) DR902	
466	*A-7060-148-A	ME-1 BOARD, COMPLETE	
467	*A-7060-147-A	CP-9 BOARD, COMPLETE	468-470
468	*A-7060-150-A	OS-1 BOARD, COMPLETE	
469	*A-7060-149-A	DR-29 BOARD, COMPLETE	
470	*A-7070-111-A	VR-7 BOARD, COMPLETE	
471	*A-7060-214-A	AW-1 BOARD, COMPLETE	
472	*3-686-850-01	FRAME, CAMERA	
473	*X-3686-597-1	CASE ASSY, SHIELD, CP	
474	2-279-715-01	RIVET, NYLON	
475	9-911-839-XX	STOPPER, HALF	

5-11. EVF (VF-207) ASSEMBLY



The components identified by shading and mark ⚠ are critical for safety.
Replace only with part numer specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

No.	Part No.	Description	Remark
501	A-7019-009-A	EVF (VF-207)	502-523
502	X-3686-610-1	CABINET (UPPER) ASSY, EVF	523
503	X-3686-706-1	CABINET (UPPER) ASSY, CR	504,505
504	3-686-855-01	CUSHION, CRT	
505	3-688-956-01	SPRING	
506	3-688-959-01	MIRROR	
507	X-3686-612-1	CABINET (LOWER) ASSY, CR	508
508	3-686-855-01	CUSHION, CRT	
509	X-3686-567-3	TABLE ASSY, LENS	510
510	3-686-861-01	CAP, EYE	
511	⚠1-546-051-11	CATHODE-RAY TUBE, B/W (C1M30P4)V901	
512	⚠1-451-251-22	DEFLECTION YOKE (MONOCHROME)	
513	*A-7060-073-A	VF-3 BOARD, COMPLETE	
514	3-688-939-01	SPRING, LEAF	
515	1-556-824-31	CORD, CONNECTION (WITH PLUG)8P	
516	X-3686-662-1	CABINET (LOWER) ASSY, EVF	521,522
517	*3-693-250-01	LABEL, MODEL NUMBER, EVF	
518	*1-614-872-11	TL-16 BOARD	
519	*1-614-871-11	TL-15 BOARD	
520	3-688-978-01	PLATE, ORNAMENTAL	
521	3-565-923-00	SPRING, COMPRESSION	
522	3-693-247-01	SCREW (M2) (CLOCK), +K	
523	3-678-103-11	SCREW, EVF STOPPER	

5-12. HARDWARE LIST

SCREW

7-621-255-20	SCREW +P 2X4
7-621-255-45	SCREW +P 2X6
7-621-255-50	SCREW +P 2X8
7-621-255-75	SCREW +P 2X12
7-621-255-85	SCREW +P 2X14
3-693-247-01	SCREW +K 2X4
7-621-772-08	SCREW +B 2X3
7-621-772-30	SCREW +B 2X6
7-621-772-38	SCREW +B 2X6
7-621-772-50	SCREW +B 2X10
7-621-772-58	SCREW +B 2X10
7-621-773-86	SCREW +B 2.6X4
7-621-773-95	SCREW +B 2.6X6
7-621-775-10	SCREW +B 2.6X4
7-685-107-11	SCREW +P 2X12 TYPE2 NON-SLIT
7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S
7-685-535-14	SCREW +BTP 2.6X10 TYPE2 N-S
7-685-536-19	SCREW +BTP 2.6X12 TYPE2 N-S
7-685-780-01	SCREW +PTT 2X3 (S)
7-685-853-01	SCREW +BVTT 2X6 (S)

LUG

7-623-505-01	LUG, 2

STOP RING

7-624-101-01	STOP RING 1.2 (E TYPE)
7-624-102-04	STOP RING 1.5, TYPE -E
7-624-105-04	STOP RING 2.3, TYPE -E
7-624-106-04	STOP RING 3.0, TYPE -E

PRECISION SCREW

7-627-551-58	SCREW, PRECISION +P 1.4X3
7-627-553-48	SCREW, PRECISION +P 2X4
7-627-850-18	SCREW, PRECISION +P 1.4X2.5

WASHER

7-688-002-11	W 2.6, MIDDLE

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part numer specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS
- All resistors are in ohms
- F : nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

CAPACITORS
- MF : μF, PF : μμF

COILS
- MMH : mH, UH : μH

Ref.No	Part No.	Description	Remark
	*A-7060-023-A	SV-13 BOARD, COMPLETE **********************	
	*X-3686-586-1	CASE (MAIN) ASSY, SHIELD, SV	
	*X-3686-587-1	LID ASSY, SV	
	*X-3686-592-1	HOLDER ASSY, SV END	
	2-279-715-21	RIVET, NYLON	

CAPACITOR

Ref.No	Part No.	Description				Remark
C501	1-124-236-00	ELECT	47MF	20%	10V	
C502	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C503	1-124-577-11	ELECT	82MF	20%	10V	
C504	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C505	1-124-577-11	ELECT	82MF	20%	10V	
C506	1-124-577-11	ELECT	82MF	20%	10V	
C507	1-124-233-00	ELECT	10MF	20%	16V	
C508	1-124-234-00	ELECT	22MF	20%	16V	
C510	1-124-255-00	ELECT	1MF	20%	50V	
C511	1-124-255-00	ELECT	1MF	20%	50V	
C512	1-124-255-00	ELECT	1MF	20%	50V	
C513	1-124-258-00	ELECT	3.3MF	20%	25V	
C515	1-124-233-00	ELECT	10MF	20%	16V	
C516	1-124-233-00	ELECT	10MF	20%	16V	
C517	1-124-233-00	ELECT	10MF	20%	16V	
C518	1-135-091-00	TANTAL. CHIP	1MF	20%	16V	
C519	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C521	1-124-245-00	ELECT	4.7MF	20%	16V	
C522	1-163-137-00	CERAMIC CHIP	680PF	5%	50V	
C552	1-124-596-11	ELECT	27MF	20%	16V	
C553	1-124-596-11	ELECT	27MF	20%	16V	
C554	1-124-596-11	ELECT	27MF	20%	16V	
C558	1-124-275-00	ELECT	2.2MF	20%	35V	
C559	1-124-233-00	ELECT	10MF	20%	16V	
C560	1-124-271-00	ELECT	1MF	20%	50V	
C562	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C563	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C565	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C566	1-163-061-00	CERAMIC CHIP	0.015MF	10%	50V	
C567	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V	
C568	1-163-074-00	CERAMIC CHIP	0.033MF	10%	25V	
C569	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C570	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C571	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C573	1-124-258-00	ELECT	3.3MF	20%	25V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN509	1-557-555-11	CABLE, FLAT (25 CORE)	
CN510	*1-564-014-00	PIN, CONNECTOR 4P	
CN511	*1-564-021-11	PIN, CONNECTOR 11P	
CN512	*1-564-014-00	PIN, CONNECTOR 4P	

DIODE

Ref.No	Part No.	Description	Remark
D501	8-719-200-35	DIODE E10QS03	
D502	8-719-200-35	DIODE E10QS03	
D504	8-719-200-35	DIODE E10QS03	
D506	8-719-100-03	DIODE 1S2835	

IC

Ref.No	Part No.	Description	Remark
IC501	8-759-202-45	IC CX20114	
IC502	8-752-003-60	IC CX20036	
IC504	8-759-100-94	IC UPC358G2	
IC505	8-759-201-01	IC TC4066BF	

COIL

Ref.No	Part No.	Description	Remark
L501	1-410-125-11	COIL, CHOKE 100UH	
L502	1-410-126-11	COIL, CHOKE 200UH	
L503	1-410-126-11	COIL, CHOKE 200UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q501	⚠ 8-729-105-29	TRANSISTOR 2SA1385	
Q502	⚠ 8-729-105-29	TRANSISTOR 2SA1385	
Q503	8-729-100-66	TRANSISTOR 2SC1623	
Q504	8-729-700-08	NJL7141E	
Q508	8-729-100-66	TRANSISTOR 2SC1623	
Q509	8-729-100-66	TRANSISTOR 2SC1623	
Q510	8-729-100-76	TRANSISTOR 2SA812	
Q511	8-729-100-76	TRANSISTOR 2SA812	
Q513	8-729-901-01	TRANSISTOR DTC144EK	
Q514	8-729-100-76	TRANSISTOR 2SA812	
Q515	8-729-901-01	TRANSISTOR DTC144EK	
Q516	8-729-100-76	TRANSISTOR 2SA812	
Q517	8-729-901-06	TRANSISTOR DTA144EK	
Q518	8-729-901-01	TRANSISTOR DTC144EK	
Q519	8-729-901-06	TRANSISTOR DTA144EK	

RESISTOR

Ref.No	Part No.	Description				Remark
R502	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R503	1-216-041-00	METAL CHIP	470	5%	1/10W	
R504	1-216-041-00	METAL CHIP	470	5%	1/10W	
R505	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R506	1-216-295-00	METAL CHIP	0	5%	1/10W	
R507	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R508	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R509	1-216-101-00	METAL CHIP	150K	5%	1/10W	
R510	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R511	1-216-025-00	METAL CHIP	100	5%	1/10W	
R513	1-216-099-00	METAL CHIP	120K	5%	1/10W	
R514	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R517	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R518	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R519	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R520	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R524	1-216-295-00	METAL CHIP	0	5%	1/10W	
R551	1-216-041-00	METAL CHIP	470	5%	1/10W	
R552	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R553	1-216-099-00	METAL CHIP	120K	5%	1/10W	
R554	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R555	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R556	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R557	1-216-049-00	METAL CHIP	1K	5%	1/10W	

Ref.No	Part No.	Description				Remark
R558	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R559	1-214-972-00	METAL	0.22	1%	1/4W	
R560	1-216-047-00	METAL CHIP	820	5%	1/10W	
R562	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R563	1-216-304-11	METAL CHIP	3.3	5%	1/10W	
R564	1-216-304-11	METAL CHIP	3.3	5%	1/10W	
R565	1-216-304-11	METAL CHIP	3.3	5%	1/10W	
R566	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R568	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R569	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R570	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R571	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R572	1-216-295-00	METAL CHIP	0	5%	1/10W	
R573	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R574	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R575	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R576	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R578	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R581	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R582	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R584	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R587	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R588	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R589	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R590	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R591	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R592	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R593	1-216-025-00	METAL CHIP	100	5%	1/10W	
R596	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R597	1-216-295-00	METAL CHIP	0	5%	1/10W	

VARIABLE RESISTOR

RV501	1-230-529-11	RES, ADJ, METAL GLAZE	470K
RV502	1-230-528-11	RES, ADJ, METAL GLAZE	220K
RV503	1-230-529-11	RES, ADJ, METAL GLAZE	470K
RV504	1-230-523-11	RES, ADJ, METAL GLAZE	10K

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*A-7060-149-A DR-29 BOARD, COMPLETE
****

*3-686-930-01 HEAT SINK
7-621-772-18 +B2X4

CAPACITOR

C711	1-124-233-00	ELECT	10MF	20%	16V
C712	1-135-076-21	TANTAL. CHIP	1MF	20%	35V
C713	1-135-092-21	TANTAL. CHIP	3.3MF	20%	16V
C714	1-135-092-21	TANTAL. CHIP	3.3MF	20%	16V
C715	1-123-613-00	ELECT	3.3MF	20%	50V
C716	1-123-613-00	ELECT	3.3MF	20%	50V
C717	1-135-092-21	TANTAL. CHIP	3.3MF	20%	16V
C718	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V
C719	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V
C720	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V
C721	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V
C781	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C787	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V
C788	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C789	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C800	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C801	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C802	1-163-077-00	CERAMIC CHIP	0.1MF		50V

DIODE

D701	8-719-100-03	DIODE 1S2835
D702	8-719-101-23	DIODE 1SS123
D703	8-719-951-12	DIODE HZ5BLL
D704	8-719-100-03	DIODE 1S2835
D705	8-719-100-03	DIODE 1S2835
D714	8-719-100-03	DIODE 1S2835
D715	8-719-100-03	DIODE 1S2835

IC

IC702	8-759-953-61	IC SN75361AP
IC703	8-759-953-61	IC SN75361AP

TRANSISTOR

Q702	8-729-100-66	TRANSISTOR 2SC1623
Q718	8-729-100-76	TRANSISTOR 2SA812
Q719 ⚠	8-729-271-23	TRANSISTOR 2SC2712
Q720 ⚠	8-729-100-76	TRANSISTOR 2SA812
Q721	8-729-100-76	TRANSISTOR 2SA812
Q722	8-729-100-66	TRANSISTOR 2SC1623
Q726	8-729-901-04	TRANSISTOR DTA114EK
Q727	8-729-901-03	TRANSISTOR DTC144WK

RESISTOR

R711	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R712	1-216-073-00	METAL CHIP	10K	5%	1/10W
R719	1-216-073-00	METAL CHIP	10K	5%	1/10W
R720	1-216-097-00	METAL CHIP	100K	5%	1/10W
R721	1-216-097-00	METAL CHIP	100K	5%	1/10W
R722	1-216-097-00	METAL CHIP	100K	5%	1/10W
R723	1-216-097-00	METAL CHIP	100K	5%	1/10W
R802	1-216-073-00	METAL CHIP	10K	5%	1/10W
R803	1-216-081-00	METAL CHIP	22K	5%	1/10W
R804	1-216-043-00	METAL CHIP	560	5%	1/10W
R805	1-216-073-00	METAL CHIP	10K	5%	1/10W
R807	1-216-081-00	METAL CHIP	22K	5%	1/10W
R820	1-216-073-00	METAL CHIP	10K	5%	1/10W
R821	1-216-073-00	METAL CHIP	10K	5%	1/10W
R828	1-216-073-00	METAL CHIP	10K	5%	1/10W
R829	1-216-075-00	METAL CHIP	12K	5%	1/10W

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part numer specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description		Remark
	*A-7060-147-A	CP-9 BOARD, COMPLETE *********************		

IC701 or IC706 is not mounted on the mounted CP-9 Board. Each of these ICs cannot be a repair-replacement part, but becomes a CCD imager block.

Ref.No	Part No.	Description		Remark
	*3-686-930-01	HEAT SINK		

CAPACITOR

Ref.No	Part No.	Description		Remark
C702	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C703	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C704	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C705	1-124-229-00	ELECT 33MF	20%	10V
C706	1-135-092-21	TANTAL. CHIP 3.3MF	20%	16V
C707	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C708	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C709	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C722	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C723	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C724	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C725	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C726	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C727	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C728	1-135-083-00	TANTAL. CHIP 0.47MF	20%	25V
C729	1-135-083-00	TANTAL. CHIP 0.47MF	20%	25V
C730	1-135-083-00	TANTAL. CHIP 0.47MF	20%	25V
C731	1-135-083-00	TANTAL. CHIP 0.47MF	20%	25V
C732	1-135-083-00	TANTAL. CHIP 0.47MF	20%	25V
C733	1-135-083-00	TANTAL. CHIP 0.47MF	20%	25V
C734	1-135-083-00	TANTAL. CHIP 0.47MF	20%	25V
C735	1-135-083-00	TANTAL. CHIP 0.47MF	20%	25V
C736	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C737	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C738	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C739	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C740	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C741	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C742	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C743	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C744	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C745	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C748	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C749	1-163-100-00	CERAMIC CHIP 20PF	5%	50V
C750	1-124-229-00	ELECT 33MF	20%	10V
C751	1-163-100-00	CERAMIC CHIP 20PF	5%	50V
C752	1-123-645-00	ELECT 33MF	20%	10V
C753	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C754	1-163-100-00	CERAMIC CHIP 20PF	5%	50V
C755	1-123-645-00	ELECT 33MF	20%	10V
C756	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C757	1-124-234-00	ELECT 22MF	20%	16V
C758	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C759	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C760	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C761	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C762	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C763	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C764	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C765	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C766	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C768	1-163-100-00	CERAMIC CHIP 20PF	5%	50V
C769	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C770	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C782	1-135-083-00	TANTAL. CHIP 0.47MF	20%	25V
C783	1-135-083-00	TANTAL. CHIP 0.47MF	20%	25V
C784	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C785	1-163-257-00	CERAMIC CHIP 180PF	5%	50V
C786	1-135-092-21	TANTAL. CHIP 3.3MF	20%	16V
C798	1-163-205-00	CERAMIC CHIP 0.001MF	5%	50V
C803	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C804	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C806	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C821	1-163-131-00	CERAMIC CHIP 390PF	5%	50V
C823	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C824	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C825	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C826	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V

DIODE

Ref.No	Part No.	Description
D706	8-719-100-05	DIODE 1S2837
D707	8-719-100-05	DIODE 1S2837
D708	8-719-100-05	DIODE 1S2837
D711	8-719-100-03	DIODE 1S2835
D712	8-719-100-05	DIODE 1S2837
D713	8-719-100-05	DIODE 1S2837
D716	8-719-100-03	DIODE 1S2835

IC

Ref.No	Part No.	Description
IC701	8-750-010-22	IC CCD IMAGER BLOCK (IU018-K1AA)
IC705	8-759-000-26	IC MMH0026CP1
IC706	8-750-010-22	IC CCD IMAGER BLOCK (IU018-K1AA)
IC707	8-759-913-03	IC CX23047B
IC708	8-757-930-02	IC CX-79301
IC709	8-759-908-09	IC CX20053

COIL

Ref.No	Part No.	Description
L701	1-408-960-21	MICRO INDUCTOR 1.5UH
L702	1-543-256-11	BEAD, FERRITE
L703	1-543-256-11	BEAD, FERRITE

TRANSISTOR

Ref.No	Part No.	Description
Q701	8-729-100-76	TRANSISTOR 2SA812
Q703	8-729-100-66	TRANSISTOR 2SC1623
Q704	8-729-100-66	TRANSISTOR 2SC1623
Q705	8-729-900-53	TRANSISTOR DTC114EK
Q706	8-729-900-53	TRANSISTOR DTC114EK
Q707	8-729-900-53	TRANSISTOR DTC114EK
Q708	8-729-109-44	TRANSISTOR 2SK94
Q709	8-729-109-44	TRANSISTOR 2SK94
Q710	8-729-109-44	TRANSISTOR 2SK94
Q714	⚠ 8-729-271-23	TRANSISTOR 2SC2712

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part numer specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
Q715	8-729-100-76	TRANSISTOR 2SA812				
Q716	8-729-126-23	TRANSISTOR 2SA1226				
Q717	8-729-102-08	TRANSISTOR 2SC2223				
		RESISTOR				
R702	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R704	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R705	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R706	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R707	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R708	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R709	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R710	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R713	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R714	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R715	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R716	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R717	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R718	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R728	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R729	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R730	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R731	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R732	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R733	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R734	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R735	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R736	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R737	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R738	1-216-009-00	METAL CHIP	22	5%	1/10W	
R739	1-216-009-00	METAL CHIP	22	5%	1/10W	
R740	1-216-013-00	METAL CHIP	33	5%	1/10W	
R741	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R742	1-216-025-00	METAL CHIP	100	5%	1/10W	
R743	1-216-066-00	METAL CHIP	5.1K	5%	1/10W	
R744	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R745	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R746	1-216-087-00	METAL CHIP	39K	5%	1/10W	
R747	1-216-093-00	METAL CHIP	68K	5%	1/10W	
R749	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R751	1-216-033-00	METAL CHIP	220	5%	1/10W	
R752	1-216-033-00	METAL CHIP	220	5%	1/10W	
R753	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R754	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R755	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R758	1-216-033-00	METAL CHIP	220	5%	1/10W	
R759	1-216-033-00	METAL CHIP	220	5%	1/10W	
R760	1-216-033-00	METAL CHIP	220	5%	1/10W	
R761	1-216-066-00	METAL CHIP	5.1K	5%	1/10W	
R762	1-216-088-00	METAL CHIP	43K	5%	1/10W	
R764	1-216-033-00	METAL CHIP	220	5%	1/10W	
R766	1-216-066-00	METAL CHIP	5.1K	5%	1/10W	
R767	1-216-033-00	METAL CHIP	220	5%	1/10W	
R769	1-216-066-00	METAL CHIP	5.1K	5%	1/10W	
R770	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R771	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R772	1-216-088-00	METAL CHIP	43K	5%	1/10W	
R773	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R774	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R775	1-216-041-00	METAL CHIP	470	5%	1/10W	
R777	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R779	1-216-295-00	METAL CHIP	0	5%	1/10W	
R780	1-216-295-00	METAL CHIP	0	5%	1/10W	
R781	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R799	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R800	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R822 ⚠	1-216-025-00	METAL CHIP	100	5%	1/10W	
R823	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R826	1-216-295-00	METAL CHIP	0	5%	1/10W	
R830	1-216-095-00	METAL CHIP	82K	5%	1/10W	
R832	1-216-025-00	METAL CHIP	100	5%	1/10W	
R834	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R835	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R836	1-216-295-00	METAL CHIP	0	5%	1/10W	

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*A-7060-150-A OS-1 BOARD, COMPLETE
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CAPACITOR

C710	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V

CRYSTAL

X701	1-561-532-11	OSCILLATOR, CRYSTAL (28MHz)

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*A-7070-111-A VR-7 BOARD, COMPLETE
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CAPACITOR

C746	1-124-229-00	ELECT	33MF	20%	10V
C747	1-124-229-00	ELECT	33MF	20%	10V

CONNECTOR

CN008	1-564-549-11	PIN, BOARD TO BOARD(L TYPE)10P
CN014	1-564-549-11	PIN, BOARD TO BOARD(L TYPE)10P

DIODE

D709	8-719-100-05	DIODE 1S2837

RESISTOR

R748	1-216-085-00	METAL CHIP	33K	5%	1/10W
R750	1-216-083-00	METAL CHIP	27K	5%	1/10W

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When indicating parts by reference number, please include the board name.

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV701	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV702	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV703	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV704	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV705	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV706	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV707	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV708	1-228-830-21	RES, ADJ, METAL GLAZE 22K	

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*A-7060-148-A ME-1 BOARD, COMPLETE
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CAPACITOR

Ref.No	Part No.	Description			Remark
C701	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C702	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C703	1-135-092-21	TANTAL. CHIP	3.3MF	20%	16V
C704	1-124-234-00	ELECT	22MF	20%	16V
C705	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C706	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C707	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C708	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C709	1-135-095-00	TANTAL. CHIP	1.5MF	20%	10V
C710	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C711	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C712	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C713	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C714	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C715	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C716	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C717	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C718	1-131-374-00	TANTALUM	33MF	20%	16V
C719	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C720	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C721	1-163-107-00	CERAMIC CHIP	39PF	5%	50V
C722	1-131-374-00	TANTALUM	33MF	20%	16V
C725	1-163-126-00	CERAMIC CHIP	240PF	5%	50V
C726	1-163-108-00	CERAMIC CHIP	43PF	5%	50V
C729	1-163-126-00	CERAMIC CHIP	240PF	5%	50V
C730	1-163-108-00	CERAMIC CHIP	43PF	5%	50V
C731	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C732	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C733	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C734	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C735	1-123-616-00	ELECT	4.7MF	20%	25V
C736	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C737	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C739	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C740	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V
C741	1-124-225-00	ELECT	100MF	20%	6.3V
C742	1-124-225-00	ELECT	100MF	20%	6.3V
C743	1-124-245-00	ELECT	4.7MF	20%	16V
C744	1-123-645-00	ELECT	33MF	20%	10V
C745	1-124-287-00	ELECT	10MF	20%	10V
C746	1-124-287-00	ELECT	10MF	20%	10V
C747	1-123-616-00	ELECT	4.7MF	20%	25V
C748	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C749	1-124-255-00	ELECT	1MF	20%	50V
C750	1-123-611-00	ELECT	1MF	20%	50V
C751	1-123-611-00	ELECT	1MF	20%	50V
C752	1-163-122-00	CERAMIC CHIP	160PF	5%	50V
C753	1-163-122-00	CERAMIC CHIP	160PF	5%	50V
C754	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C755	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C756	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C757	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C758	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C759	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C760	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C761	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C762	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C763	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C764	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C767	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C768	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C769	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C770	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V

CONNECTOR

Ref.No	Part No.	Description	Remark
CN704	*1-564-017-00	PIN, CONNECTOR 7P	
CN705	*1-564-018-11	PIN, CONNECTOR 8P	

DIODE

Ref.No	Part No.	Description	Remark
D701	8-719-100-05	DIODE 1S2837	
D702	8-719-101-23	DIODE 1SS123	
D703	8-719-100-05	DIODE 1S2837	

DELAY LINE

Ref.No	Part No.	Description	Remark
DL701	1-416-238-00	DELAY LINE	

FILTER

Ref.No	Part No.	Description	Remark
FL701	1-235-394-11	FILTER, LOW PASS (YH)	
FL702	1-235-277-00	FILTER, BAND PASS	

IC

Ref.No	Part No.	Description	Remark
IC701⚠	8-752-303-90	IC CX23039	
IC702	8-752-015-10	IC CX20151	
IC703	8-759-908-11	IC CX20055	
IC704	8-759-908-15	IC TL431CLP	

COIL

Ref.No	Part No.	Description	Remark
L701	1-408-960-21	MICRO INDUCTOR 1.5UH	
L702	1-408-960-21	MICRO INDUCTOR 1.5UH	

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When indicating parts by reference number, please include the board name.

ME-1

Ref.No	Part No.	Description	Remark
		TRANSISTOR	
Q701	8-729-100-66	TRANSISTOR 2SC1623	
Q702 ⚠	8-729-271-23	TRANSISTOR 2SC2712	
Q703	8-729-100-66	TRANSISTOR 2SC1623	
Q704	8-729-100-66	TRANSISTOR 2SC1623	
Q705	8-729-100-66	TRANSISTOR 2SC1623	
Q706	8-729-100-66	TRANSISTOR 2SC1623	
Q708	8-729-100-66	TRANSISTOR 2SC1623	
Q710	8-729-100-66	TRANSISTOR 2SC1623	
Q711	8-729-100-66	TRANSISTOR 2SC1623	
Q712	8-729-100-66	TRANSISTOR 2SC1623	
Q713	8-729-100-66	TRANSISTOR 2SC1623	
Q715	8-729-901-03	TRANSISTOR DTC144WK	
Q716	8-729-901-03	TRANSISTOR DTC144WK	
Q717	8-729-901-03	TRANSISTOR DTC144WK	
Q718	8-729-900-99	TRANSISTOR DTA144WK	
Q719	8-729-901-03	TRANSISTOR DTC144WK	
Q720	8-729-901-04	TRANSISTOR DTA114EK	
Q721	8-729-901-03	TRANSISTOR DTC144WK	
Q722	8-729-100-66	TRANSISTOR 2SC1623	
		RESISTOR	
R701	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R703	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R704	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R706	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R707	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R708	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R709	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R710	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R711	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R712	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R713	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R714	1-216-068-00	METAL CHIP 6.2K 5% 1/10W	
R716	1-216-056-00	METAL CHIP 2K 5% 1/10W	
R717	1-216-056-00	METAL CHIP 2K 5% 1/10W	
R718	1-216-056-00	METAL CHIP 2K 5% 1/10W	
R719	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R720	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R723	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R724	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R725	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R726	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R729	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R730	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R731	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R732	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R733	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R734	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R735	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R736	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R737	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R738	1-216-082-00	METAL CHIP 24K 5% 1/10W	
R739	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R740	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R741	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R742	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R743	1-216-295-00	METAL CHIP 0 5% 1/10W	
R744	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R745	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R746	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R747	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R749	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R750	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R751	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R752	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R753 ⚠	1-216-018-00	METAL CHIP 51 5% 1/10W	
R754	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R755	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R756	1-216-035-00	METAL CHIP 270 5% 1/10W	
R757	1-216-295-00	METAL CHIP 0 5% 1/10W	
R758	1-216-295-00	METAL CHIP 0 5% 1/10W	
R760	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R761	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R762	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R763	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R764	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R765	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R766	1-216-025-00	METAL CHIP 100 5% 1/10W	
R767	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R768	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R769	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R770	1-216-079-00	METAL CHIP 18K 5% 1/10W	
		VARIABLE RESISTOR	
RV701	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV702	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV703	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV704	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV705	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV706	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV707	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV710	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV711	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV712	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV713	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV714	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV715	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV716	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV717	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV718	1-228-829-21	RES, ADJ, METAL GLAZE 10K	

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Replace only with part numer specified.

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When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
	*A-7060-193-A	MC-4 BOARD, COMPLETE **********************	
	*3-3686-583-1	CASE ASSY, SHIELD, MC	
	2-279-715-21	RIVET, NYLON	
		CAPACITOR	
C501	1-124-233-00	ELECT 10MF 20% 16V	
C502	1-124-233-00	ELECT 10MF 20% 16V	
C505	1-124-234-00	ELECT 22MF 20% 10V	
C506	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C507	1-163-020-00	CERAMIC CHIP 0.0082MF 10% 50V	
C508	1-124-257-00	ELECT 2.2MF 20% 35V	
C509	1-163-133-00	CERAMIC CHIP 470PF 5% 50V	
C510	1-124-268-00	ELECT 0.22MF 20% 50V	
C512	1-163-141-00	CERAMIC CHIP 0.001MF 5% 50V	
C514	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C515	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C516	1-124-288-00	ELECT 22MF 20% 10V	
C518	1-163-075-00	CERAMIC CHIP 0.047MF 10% 25V	
C519	1-124-275-00	ELECT 2.2MF 20% 35V	
C601	1-163-105-00	CERAMIC CHIP 33PF 5% 50V	
C602	1-163-105-00	CERAMIC CHIP 33PF 5% 50V	
C603	1-124-233-00	ELECT 10MF 20% 16V	
C604	1-124-222-00	ELECT 22MF 20% 6.3V	
C605	1-124-234-00	ELECT 22MF 20% 16V	
C606	1-163-127-00	CERAMIC CHIP 270PF 5% 50V	
C607	1-124-233-00	ELECT 10MF 20% 16V	
C608	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
C609	1-124-254-00	ELECT 0.68MF 20% 50V	
C610	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C611	1-163-064-00	CERAMIC CHIP 0.027MF 10% 50V	
C614	1-163-141-00	CERAMIC CHIP 0.001MF 10% 50V	
		CONNECTOR	
CN501	*1-564-013-00	PIN, CONNECTOR 3P	
CN502	*1-564-022-00	PIN, CONNECTOR 12P	
CN503	*1-564-028-00	PIN, CONNECTOR 3P	
CN505	*1-564-012-00	PIN, CONNECTOR 2P	
CN506	*1-562-583-11	CONNECTOR (FPC & FC)	
CN507	*1-564-014-00	PIN, CONNECTOR 4P	
CN508	*1-564-014-00	PIN, CONNECTOR 4P	
		DIODE	
D501	8-719-101-23	DIODE 1SS123	
D601	8-719-200-27	DIODE E10DS2	
D602	8-719-200-27	DIODE E10DS2	
D603	8-719-100-05	DIODE 1S2837	
D604	8-719-100-03	DIODE 1S2835	
D605	8-719-914-11	DIODE HZ4ALL	
D606	8-719-100-05	DIODE 1S2837	

Ref.No	Part No.	Description	Remark
		IC	
IC501	8-759-102-29	IC CX20115	
IC502	8-752-003-50	IC CX20035	
IC601	8-759-922-26	IC MB88505-341M	
IC602	8-759-201-80	IC TC4526BF	
		COIL	
L501	1-407-165-XX	MICRO INDUCTOR 47UH	
L601	1-410-125-11	COIL, CHOKE 100UH	
L602	1-408-987-21	MICRO INDUCTOR 330UH	
		IC LINK	
PS601⚠	1-532-685-11	LINK, IC (ICP-N20)	
PS602⚠	1-532-637-21	LINK, IC (ICP-F25)	
		TRANSISTOR	
Q501	8-729-100-66	TRANSISTOR 2SC1623	
Q502	8-729-100-66	TRANSISTOR 2SC1623	
Q503	8-729-901-04	TRANSISTOR DTA114EK	
Q504	8-729-100-66	TRANSISTOR 2SC1623	
Q505	8-729-100-76	TRANSISTOR 2SA812	
Q506	8-729-100-66	TRANSISTOR 2SC1623	
Q507	8-729-100-76	TRANSISTOR 2SA812	
Q508	8-729-100-76	TRANSISTOR 2SA812	
Q509	8-729-100-66	TRANSISTOR 2SC1623	
Q510	8-729-901-06	TRANSISTOR DTA144EK	
Q511	8-729-901-01	TRANSISTOR DTC144EK	
Q512	8-729-901-06	TRANSISTOR DTA144EK	
Q513	8-729-901-01	TRANSISTOR DTC144EK	
Q514	8-729-901-01	TRANSISTOR DTC144EK	
Q515	8-729-901-01	TRANSISTOR DTC144EK	
Q601	8-729-900-98	TRANSISTOR DTC143TK	
Q602	8-729-900-98	TRANSISTOR DTC143TK	
Q603	8-729-901-06	TRANSISTOR DTA144EK	
Q604	8-729-901-06	TRANSISTOR DTA144EK	
Q605	8-729-901-06	TRANSISTOR DTA144EK	
Q606	8-729-900-98	TRANSISTOR DTC143TK	
Q607	8-729-901-04	TRANSISTOR DTA114EK	
Q609	8-729-900-98	TRANSISTOR DTC143TK	
Q610	8-729-900-98	TRANSISTOR DTC143TK	
Q611	8-729-901-01	TRANSISTOR DTC144EK	
Q612	8-729-901-01	TRANSISTOR DTC144EK	
Q613	8-729-100-66	TRANSISTOR 2SC1623	
Q614	8-729-100-66	TRANSISTOR 2SC1623	
Q615	8-729-901-05	TRANSISTOR DTA124EK	
Q616	8-729-900-53	TRANSISTOR DTC114EK	
Q617 ⚠	8-729-901-05	TRANSISTOR DTA124EK	
Q618	8-729-199-92	TRANSISTOR 2SD999	
Q619 ⚠	8-729-202-86	TRANSISTOR 2SA1242LB	
Q620	8-729-100-66	TRANSISTOR 2SC1623	
Q621	8-729-100-76	TRANSISTOR 2SA812	
Q623	8-729-100-76	TRANSISTOR 2SA812	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part numer specified.

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Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
Q624	8-729-100-66	TRANSISTOR 2SC1623	
Q625	8-729-100-66	TRANSISTOR 2SC1623	
Q626	8-729-100-66	TRANSISTOR 2SC1623	
Q627	8-729-901-01	TRANSISTOR DTC144EK	
Q628	8-729-901-01	TRANSISTOR DTC144EK	
Q629	8-729-100-76	TRANSISTOR 2SA812	
Q630	8-729-901-06	TRANSISTOR DTA144EK	

RESISTOR

Ref.No	Part No.	Description	Remark
R502	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R504	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R505	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R506	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R507	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R508	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R509	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R510	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R511	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R512	1-216-103-00	METAL CHIP 180K 5% 1/10W	
R513	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R514	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R515	1-216-095-00	METAL CHIP 82K 5% 1/10W	
R516	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R517	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R518	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R519	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R520	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R521	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R522	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R523	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R524	1-216-087-00	METAL CHIP 39K 5% 1/10W	
R525	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R526	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R527	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R528	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R529	1-216-091-00	METAL CHIP 56K 5% 1/10W	
R601	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R602	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R603	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R604	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R605	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R606	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R607	1-216-162-00	METAL CHIP 33 5% 1/8W	
R608	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R609	1-216-170-00	METAL CHIP 68 5% 1/8W	
R610	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R611	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R612	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R613	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R614	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R615	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R616	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R617	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R618	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R619	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R620	1-216-087-00	METAL CHIP 39K 5% 1/10W	
R621	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R622	1-216-087-00	METAL CHIP 39K 5% 1/10W	
R623 ⚠	1-216-190-00	METAL CHIP 470 5% 1/8W	
R624	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R625	1-216-041-00	METAL CHIP 470 5% 1/10W	
R626	1-216-045-00	METAL CHIP 680 5% 1/10W	
R627	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R628	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R629	1-216-194-00	METAL CHIP 680 5% 1/8W	
R630	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R631	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R632	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R635	1-216-134-00	METAL CHIP 2.2 5% 1/8W	
R636	1-216-134-00	METAL CHIP 2.2 5% 1/8W	
R637	1-216-134-00	METAL CHIP 2.2 5% 1/8W	
R638	1-216-134-00	METAL CHIP 2.2 5% 1/8W	
R639	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R640	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R641	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R642	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R643	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R644	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R645	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R646	1-216-194-00	METAL CHIP 680 5% 1/8W	
R647	1-216-194-00	METAL CHIP 680 5% 1/8W	
R650	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R651	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R652	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R653	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R654	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R655	1-216-033-00	METAL CHIP 220 5% 1/10W	
R657	1-216-295-00	METAL CHIP 0 5% 1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV601	1-230-520-11	RES, ADJ, METAL GLAZE 1K	

CRYSTAL

Ref.No	Part No.	Description	Remark
X601	1-567-143-00	OSCILLATOR, CERAMIC (6MHz)	

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*A-7060-196-A SK-7 BOARD, COMPLETE
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*3-686-795-01 SPRING (SK)
*3-686-822-01 HOLDER, LCD

CAPACITOR

Ref.No	Part No.	Description	Remark
C491	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C601	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C602	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C603	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C604	1-163-021-00	CERAMIC CHIP 0.01MF 50V	

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Ref.No	Part No.	Description	Remark
C605	1-163-021-00	CERAMIC CHIP 0.01MF	50V
C606	1-163-021-00	CERAMIC CHIP 0.01MF	50V
C607	1-163-021-00	CERAMIC CHIP 0.01MF	50V
C609	1-123-617-00	ELECT 10MF 20%	16V
C610	1-163-021-00	CERAMIC CHIP 0.01MF	50V
C611	1-123-617-00	ELECT 10MF 20%	16V
C612	1-163-081-00	CERAMIC CHIP 0.22MF	25V
C613	1-163-021-00	CERAMIC CHIP 0.01MF	50V
C617	1-163-021-00	CERAMIC CHIP 0.01MF	50V
C618	1-163-021-00	CERAMIC CHIP 0.01MF	50V
C619	1-163-005-00	CERAMIC CHIP 470PF 10%	50V
		CONNECTOR	
CN605	1-562-589-11	SOCKET, DIN (SMALL TYPE) 5P	
		DIODE	
D601	8-719-100-05	DIODE 1S2837	
D602	8-719-100-05	DIODE 1S2837	
D603	8-719-100-05	DIODE 1S2837	
D604	8-719-100-05	DIODE 1S2837	
D605	8-719-100-05	DIODE 1S2837	
D606	8-719-100-05	DIODE 1S2837	
D607	8-719-100-05	DIODE 1S2837	
D608	8-719-100-03	DIODE 1S2835	
D609	8-719-100-05	DIODE 1S2837	
D610	8-719-100-05	DIODE 1S2837	
D611	8-719-100-05	DIODE 1S2837	
D612	8-719-100-05	DIODE 1S2837	
D613	8-719-100-03	DIODE 1S2835	
D614	8-719-918-67	DIODE GL-1EG102	
D615	8-719-918-65	DIODE GL-1PR102	
D616	8-719-918-67	DIODE GL-1EG102	
D617	8-719-918-65	DIODE GL-1PR102	
D618	8-719-918-66	DIODE GL-1HY102	
D619	8-719-918-66	DIODE GL-1HY102	
D620	8-719-106-71	DIODE RD12M-B2	
D621	8-719-106-71	DIODE RD12M-B2	
D622	8-719-106-71	DIODE RD12M-B2	
		IC	
IC601	8-759-105-47	IC UPD7503G-324	
IC602	8-759-200-77	IC TC4028BF	
IC603	8-757-991-00	IC CX7991	
IC604	8-759-100-93	IC UPC393G2	
IC605	8-759-200-82	IC TC4069UBF	
		DISPLAY PANEL	
ND601	1-806-917-11	DISPLAY PANEL, LIQUID CRYSTAL	
		TRANSISTOR	
Q601	8-729-100-66	TRANSISTOR 2SC1623	
Q602	8-729-100-66	TRANSISTOR 2SC1623	
Q603	8-729-100-66	TRANSISTOR 2SC1623	
Q604	8-729-100-66	TRANSISTOR 2SC1623	
Q605	8-729-100-66	TRANSISTOR 2SC1623	
Q606	8-729-100-66	TRANSISTOR 2SC1623	
Q607	8-729-100-76	TRANSISTOR 2SA812	
Q608	8-729-100-76	TRANSISTOR 2SA812	
Q609	8-729-901-01	TRANSISTOR DTC144EK	
Q610	8-729-901-01	TRANSISTOR DTC144EK	
Q611	8-729-901-01	TRANSISTOR DTC144EK	
Q612	8-729-901-06	TRANSISTOR DTA144EK	
Q614	8-729-901-06	TRANSISTOR DTA144EK	
		RESISTOR	
R601	1-216-109-00	METAL CHIP 330K 5% 1/10W	
R602	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R603	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R604	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R605	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R606	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R607	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R608	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R609	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R610	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R611	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R612	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R613	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R614	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R615	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R616	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R617	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R618	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R619	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R620	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R621	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R622	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R623	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R624	1-216-037-00	METAL CHIP 330 5% 1/10W	
R625	1-216-031-00	METAL CHIP 180 5% 1/10W	
R626	1-216-031-00	METAL CHIP 180 5% 1/10W	
R627	1-216-035-00	METAL CHIP 270 5% 1/10W	
R628	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R629	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R630	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R631	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R632	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R633	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R634	1-216-087-00	METAL CHIP 39K 5% 1/10W	
R635	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R639	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R640	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R641	1-216-115-00	METAL CHIP 560K 5% 1/10W	
R642	1-216-081-00	METAL CHIP 22K 5% 1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R643	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R644	1-216-109-00	METAL CHIP	330K	5%	1/10W	
R645	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R646	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R647	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R648	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R649	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R650	1-216-047-00	METAL CHIP	820	5%	1/10W	
R651	1-216-077-00	METAL CHIP	15K	5%	1/10W	

SWITCH

Ref.No	Part No.	Description
S601	1-554-174-00	SWITCH, KEY BOARD
S602	1-554-174-00	SWITCH, KEY BOARD
S603	1-554-174-00	SWITCH, KEY BOARD
S604	1-554-364-00	SWITCH, SLIDE
S605	1-554-364-00	SWITCH, SLIDE
S606	1-554-174-00	SWITCH, KEY BOARD
S607	1-554-174-00	SWITCH, KEY BOARD
S608	1-554-174-00	SWITCH, KEY BOARD
S609	1-554-174-00	SWITCH, KEY BOARD
S610	1-554-174-00	SWITCH, KEY BOARD
S611	1-554-174-00	SWITCH, KEY BOARD
S612	1-570-134-11	SWITCH, SLIDE

CRYSTAL

Ref.No	Part No.	Description
X601	1-527-532-00	OSCILLATOR, CERAMIC (400kHz)

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*A-7060-097-A HS-4 BOARD, COMPLETE
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*X-3686-591-1 HOLDER ASSY, HS TOP

CAPACITOR

Ref.No	Part No.	Description	Remark
C602	1-125-373-11	DOUBLE LAYERS 22000MF	5.5V

CONNECTOR

Ref.No	Part No.	Description
CN005	1-564-610-21	CONNECTOR, BOARD TO BOARD
CN403	*1-564-027-00	PIN, CONNECTOR 2P
CN404	*1-564-028-00	PIN, CONNECTOR 3P

DIODE

Ref.No	Part No.	Description
D602	8-719-105-82	DIODE RD5.1M-B2
D603	8-719-106-16	DIODE RD6.8M-B1

IC LINK

Ref.No	Part No.	Description
PS601 ⚠	1-532-605-11	LINK, IC (ICP-N10)

TRANSISTOR

Ref.No	Part No.	Description
Q601	8-729-100-66	TRANSISTOR 2SC1623
Q602	8-729-113-33	TRANSISTOR 2SB733-4
Q603	8-729-700-08	NJL7141E
Q604	8-729-159-64	TRANSISTOR 2SD596
Q605	8-729-900-53	TRANSISTOR DTC114EK
Q607 ⚠	8-729-202-86	TRANSISTOR 2SA1242LB
Q608	8-729-100-76	TRANSISTOR 2SA812
Q609	8-729-901-01	TRANSISTOR DTC144EK

RESISTOR

Ref.No	Part No.	Description				Remark
R601	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R602	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R603	1-216-190-00	METAL CHIP	470	5%	1/8W	
R604	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R605	1-216-190-00	METAL CHIP	470	5%	1/8W	
R606	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R607	1-216-168-00	METAL CHIP	56	5%	1/8W	
R608	1-216-168-00	METAL CHIP	56	5%	1/8W	
R609	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R610	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R612	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R613	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R614	1-216-109-00	METAL CHIP	330K	5%	1/10W	
R615	1-216-073-00	METAL CHIP	10K	5%	1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description
RV601	1-230-524-11	RES, ADJ, METAL GLAZE 22K

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*A-7060-098-A DS-10 BOARD, COMPLETE
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CAPACITOR

Ref.No	Part No.	Description			Remark
C601	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C602	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C603	1-124-258-00	ELECT	3.3MF	20%	25V
C604	1-124-258-00	ELECT	3.3MF	20%	25V
C605	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C606	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C607	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C608	1-124-239-00	ELECT	6.8MF	20%	16V
C610	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C611	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C615	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C616	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C617	1-163-081-00	CERAMIC CHIP	0.22MF		25V

CONNECTOR

Ref.No	Part No.	Description
CN010	1-564-548-11	PIN, BOARD TO BOARD (L TYPE)5P
CN011	1-564-549-11	PIN, BOARD TO BOARD(L TYPE)10P
CN012	1-564-549-11	PIN, BOARD TO BOARD(L TYPE)10P

DIODE

Ref.No	Part No.	Description
D601	8-719-100-05	DIODE 1S2837
D602	8-719-100-05	DIODE 1S2837
D603	8-719-100-05	DIODE 1S2837
D604	8-719-100-03	DIODE 1S2835
D605 ⚠	8-719-106-43	DIODE RD9.1M-B1

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part numer specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
D606	8-719-105-58	DIODE RD3.9M-B2	
		IC	
IC601	8-759-200-82	IC TC4069UBF	
IC602	8-759-200-65	IC TC4013BF	
IC603	8-759-910-84	IC MB88201-170N	
IC604	8-759-100-93	IC UPC393G2	
		COIL	
L601	1-408-987-21	MICRO INDUCTOR 330UH	
		TRANSISTOR	
Q601	8-729-901-06	TRANSISTOR DTA144EK	
Q602	8-729-901-06	TRANSISTOR DTA144EK	
Q603	8-729-901-01	TRANSISTOR DTC144EK	
Q604	8-729-100-66	TRANSISTOR 2SC1623	
Q605	8-729-901-01	TRANSISTOR DTC144EK	
Q606	8-729-100-66	TRANSISTOR 2SC1623	
Q607	8-729-901-01	TRANSISTOR DTC144EK	
Q608	8-729-900-98	TRANSISTOR DTC143TK	
Q609	8-729-901-01	TRANSISTOR DTC144EK	
Q610	8-729-100-66	TRANSISTOR 2SC1623	
Q611	8-729-901-01	TRANSISTOR DTC144EK	
Q612	8-729 901-01	TRANSISTOR DTC144EK	
Q613	8-729-901-01	TRANSISTOR DTC144EK	
		RESISTOR	
R601	1-216-033-00	METAL CHIP 220 5% 1/10W	
R602	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R603	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R604	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R605	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R606	1-216-033-00	METAL CHIP 220 5% 1/10W	
R607	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R608	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R609	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R610	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R611	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R612	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R613	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R614	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R615	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R616	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R617	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R618	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R619	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R620	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R621	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R622	1-216-037-00	METAL CHIP 330 5% 1/10W	
R623	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R624	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R625	1-216-089-00	METAL CHIP 47K 5% 1/10W	

Ref.No	Part No.	Description	Remark
R626	1-216-039-00	METAL CHIP 390 5% 1/10W	
R627	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R628	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R629	1-216-295-00	METAL CHIP 0 5% 1/10W	
R630	1-216-039-00	METAL CHIP 390 5% 1/10W	
		CRYSTAL	
X601	1-567-143-00	OSCILLATOR, CERAMIC (6MHz)	

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Ref.No	Part No.	Description	Remark
	*A-7060-018-A	AR-1 BOARD, COMPLETE *********************	
	*3-686-957-01	CASE (MAIN), SHIELD, AR	
		CAPACITOR	
C101	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C102	1-124-224-00	ELECT 47MF 20% 6.3V	
C103	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C104	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C105	1-163-075-00	CERAMIC CHIP 0.047MF 10% 25V	
C106	1-131-347-00	TANTALUM 1MF 10% 35V	
C107	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C108	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C110	1-124-225-00	ELECT 100MF 20% 6.3V	
C111	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C112	1-124-225-00	ELECT 100MF 20% 6.3V	
C113	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C114	1-131-347-00	TANTALUM 1MF 10% 35V	
C115	1-163-075-00	CERAMIC CHIP 0.047MF 10% 25V	
C116	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C117	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C118	1-163-075-00	CERAMIC CHIP 0.047MF 10% 25V	
C119	1-124-255-00	ELECT 1MF 20% 50V	
C120	1-163-103-00	CERAMIC CHIP 27PF 5% 50V	
C122	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C123	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C124	1-124-222-00	ELECT 22MF 20% 6.3V	
C125	1-163-105-00	CERAMIC CHIP 33PF 5% 50V	
C126	1-163-114-00	CERAMIC CHIP 75PF 5% 50V	
C128	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C129	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C130	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C131	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C132	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C133	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C134	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C136	1-163-075-00	CERAMIC CHIP 0.047MF 10% 25V	
C138	1-163-103-00	CERAMIC CHIP 27PF 5% 50V	
C139	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C140	1-163-075-00	CERAMIC CHIP 0.047MF 10% 25V	
C141	1-163-127-00	CERAMIC CHIP 270PF 5% 50V	
C142	1-163-033-00	CERAMIC CHIP 0.022MF 10% 25V	

When indicating parts by reference number, please include the board name.

AR-1

Ref.No	Part No.	Description	Remark
C143	1-163-033-00	CERAMIC CHIP 0.022MF 10% 25V	
C144	1-163-075-00	CERAMIC CHIP 0.047MF 10% 25V	
C145	1-124-233-00	ELECT 10MF 20% 16V	
C146	1-163-108-00	CERAMIC CHIP 43PF 5% 50V	
C147	1-163-129-00	CERAMIC CHIP 330PF 5% 50V	
C148	1-163-075-00	CERAMIC CHIP 0.047MF 10% 25V	
C149	1-163-075-00	CERAMIC CHIP 0.047MF 10% 25V	
C401	1-163-019-00	CERAMIC CHIP 0.0068MF 10% 50V	
C402	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C403	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C404	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C405	1-163-033-00	CERAMIC CHIP 0.022MF 10% 25V	
C406	1-163-257-00	CERAMIC CHIP 180PF 5% 50V	
C407	1-163-081-00	CERAMIC CHIP 0.22MF 25V	
C408	1-163-145-00	CERAMIC CHIP 0.0015MF 5% 50V	
C409	1-163-257-00	CERAMIC CHIP 180PF 5% 50V	
C410	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
C411	1-163-014-00	CERAMIC CHIP 0.0027MF 10% 50V	
C412	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C413	1-163-141-00	CERAMIC CHIP 0.001MF 10% 50V	
C414	1-124-225-00	ELECT 100MF 20% 6.3V	
C415	1-124-225-00	ELECT 100MF 20% 6.3V	
C417	1-124-224-00	ELECT 47MF 20% 6.3V	
C418	1-163-005-00	CERAMIC CHIP 470PF 10% 50V	
C419	1-124-225-00	ELECT 100MF 20% 6.3V	
C420	1-124-233-00	ELECT 10MF 20% 16V	
C421	1-163-088-00	CERAMIC CHIP 5PF 0.25PF 50V	
C422	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
C423	1-163-125-00	CERAMIC CHIP 220PF 10% 50V	
C424	1-163-079-00	CERAMIC CHIP 0.039MF 10% 25V	
C425	1-163-137-00	CERAMIC CHIP 680PF 5% 50V	
C426	1-163-020-00	CERAMIC CHIP 0.0082MF 10% 50V	
C427	1-124-255-00	ELECT 1MF 20% 50V	
C428	1-124-233-00	ELECT 10MF 20% 16V	
C429	1-124-233-00	ELECT 10MF 20% 16V	
C430	1-123-618-00	ELECT 22MF 20% 6.3V	
C431	1-123-612-00	ELECT 2.2MF 20% 50V	
C432	1-124-253-00	ELECT 0.47MF 20% 50V	
C433	1-123-661-00	ELECT 100MF 20% 6.3V	
C434	1-163-141-00	CERAMIC CHIP 0.001MF 10% 50V	
C436	1-123-661-00	ELECT 100MF 20% 6.3V	
C437	1-123-610-00	ELECT 0.47MF 20% 50V	
C438	1-163-257-00	CERAMIC CHIP 180PF 5% 50V	
C439	1-163-014-00	CERAMIC CHIP 0.0027MF 10% 50V	
C440	1-163-015-00	CERAMIC CHIP 0.0033MF 10% 50V	
C441	1-124-233-00	ELECT 10MF 20% 16V	
C442	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C444	1-163-005-00	CERAMIC CHIP 470PF 10% 50V	
C445	1-163-103-00	CERAMIC CHIP 27PF 5% 50V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN007	1-564-098-21	CONNECTOR, BOARD TO BOARD	
CN008	1-564-098-21	CONNECTOR, BOARD TO BOARD	
CN009	1-564-098-21	CONNECTOR, BOARD TO BOARD	
CN111	*1-564-016-00	PIN, CONNECTOR 6P	
CN112	*1-564-003-00	PIN, CONNECTOR 4P	
CN113	*1-564-014-00	PIN, CONNECTOR 4P	
CN114	*1-564-012-00	PIN, CONNECTOR 2P	

DIODE

Ref.No	Part No.	Description	Remark
D101	8-719-101-23	DIODE 1SS123	

BAND PASS FILTER

Ref.No	Part No.	Description	Remark
FL401	1-235-398-11	BPF	

IC

Ref.No	Part No.	Description	Remark
IC101	8-752-003-40	IC CX20034	
IC401	8-752-003-73	IC CX20037-2	

COIL

Ref.No	Part No.	Description	Remark
L101	1-408-970-21	MICRO INDUCTOR 10UH	
L102	1-408-984-21	MICRO INDUCTOR 150UH	
L103	1-407-161-XX	MICRO INDUCTOR 22UH	
L104	1-407-161-XX	MICRO INDUCTOR 22UH	
L105	1-407-161-XX	MICRO INDUCTOR 22UH	
L106	1-408-966-21	MICRO INDUCTOR 4.7UH	
L107	1-407-177-XX	MICRO INDUCTOR 470UH	
L108	1-407-161-XX	MICRO INDUCTOR 22UH	
L109	1-407-172-XX	MICRO INDUCTOR 180UH	
L111	1-407-160-XX	MICRO INDUCTOR 18UH	
L401	1-408-948-00	MICRO INDUCTOR 220UH	

VARIABLE COIL

Ref.No	Part No.	Description	Remark
LV101	1-459-548-11	COIL, VARIABLE 330UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q101	8-729-100-66	TRANSISTOR 2SC1623	
Q102	8-729-901-03	TRANSISTOR DTC144WK	
Q103	8-729-901-03	TRANSISTOR DTC144WK	
Q104	8-729-271-23	TRANSISTOR 2SC2712	
Q105	8-729-100-66	TRANSISTOR 2SC1623	
Q106	8-729-100-66	TRANSISTOR 2SC1623	
Q401	8-729-100-66	TRANSISTOR 2SC1623	
Q402	8-729-310-63	TRANSISTOR 2SK160	
Q403	8-729-901-03	TRANSISTOR DTC144WK	
Q404	8-729-100-66	TRANSISTOR 2SC1623	
Q405	8-729-901-03	TRANSISTOR DTC144WK	
Q406	8-729-901-03	TRANSISTOR DTC144WK	
Q407	8-729-100-66	TRANSISTOR 2SC1623	
Q408	8-729-100-76	TRANSISTOR 2SA812	

RESISTOR

Ref.No	Part No.	Description	Remark
R101	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R102	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R103	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R104	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R105	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R106	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R107	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R108	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R109	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R110	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R111	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R112	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R113	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R114	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R115	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R116	1-216-043-00	METAL CHIP	560	5%	1/10W	
R117	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R118	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R119	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R120	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R121	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R122	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R123	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R124	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R125	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R126	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R127	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R128	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R129	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R130	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R131	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R132	1-216-043-00	METAL CHIP	560	5%	1/10W	
R133	1-216-043-00	METAL CHIP	560	5%	1/10W	
R134	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R135	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R136	1-216-041-00	METAL CHIP	470	5%	1/10W	
R137	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R138	1-216-047-00	METAL CHIP	820	5%	1/10W	
R139	1-216-023-00	METAL CHIP	82	5%	1/10W	
R140	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R141	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R142	1-216-041-00	METAL CHIP	470	5%	1/10W	
R143	1-216-025-00	METAL CHIP	100	5%	1/10W	
R144	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R145	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R146	1-216-295-00	METAL CHIP	0	5%	1/10W	
R401	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R402	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R403	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R404	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R405	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R406	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R407	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R408	1-216-060-00	METAL CHIP	3K	5%	1/10W	
R409	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R410	1-216-047-00	METAL CHIP	820	5%	1/10W	
R411	1-216-047-00	METAL CHIP	820	5%	1/10W	

Ref.No	Part No.	Description				Remark
R413	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R414	1-216-001-00	METAL CHIP	10	5%	1/10W	
R415	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R416	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R417	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R418	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R419	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R420	1-216-045-00	METAL CHIP	680	5%	1/10W	
R421	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R422	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R423	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R424	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R425	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R426	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R427	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R428	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R429	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R430	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R431	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R432	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R433	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R434	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R435	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R436	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R437	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R438	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R439	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R440	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R441	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R442	1-216-041-00	METAL CHIP	470	5%	1/10W	
R444	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R445	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R446	1-216-025-00	METAL CHIP	100	5%	1/10W	
R447	1-216-043-00	METAL CHIP	560	5%	1/10W	
R448	1-216-041-00	METAL CHIP	470	5%	1/10W	
R449	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	

VARIABLE RESISTOR

RV101	1-230-523-11	RES, ADJ, METAL GLAZE 10K
RV102	1-230-522-11	RES, ADJ, METAL GLAZE 4.7K
RV103	1-230-524-11	RES, ADJ, METAL GLAZE 22K
RV104	1-230-522-11	RES, ADJ, METAL GLAZE 4.7K
RV105	1-230-523-11	RES, ADJ, METAL GLAZE 10K
RV106	1-230-522-11	RES, ADJ, METAL GLAZE 4.7K
RV401	1-230-524-11	RES, ADJ, METAL GLAZE 22K
RV402	1-230-523-11	RES, ADJ, METAL GLAZE 10K

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*A-7060-213-A VI-6 BOARD, COMPLETE
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2-279-715-21	RIVET, NYLON
3-686-934-01	REINFORCEMENT (A), FLAT CABLE

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
		CAPACITOR			
C101	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C102	1-163-114-00	CERAMIC CHIP	75PF	5%	50V
C103	1-163-257-00	CERAMIC CHIP	180PF	5%	50V
C104	1-124-245-00	ELECT	4.7MF	20%	35V
C105	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C106	1-123-608-00	ELECT	0.22MF	20%	50V
C107	1-124-233-00	ELECT	10MF	20%	16V
C108	1-124-245-00	ELECT	4.7MF	20%	35V
C109	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V
C110	1-124-245-00	ELECT	4.7MF	20%	35V
C111	1-124-233-00	ELECT	10MF	20%	16V
C112	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C113	1-163-143-00	CERAMIC CHIP	0.0012MF	5%	50V
C114	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C115	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C116	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C118	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C119	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C120	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C121	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C122	1-163-088-00	CERAMIC CHIP	5PF	0.25PF	50V
C123	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C124	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C125	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C126	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C127	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C128	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C129	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V
C130	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C131	1-163-137-00	CERAMIC CHIP	680PF	10%	50V
C132	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C133	1-124-224-00	ELECT	47MF	20%	6.3V
C134	1-124-224-00	ELECT	47MF	20%	6.3V
C135	1-123-661-00	ELECT	100MF	20%	6.3V
C136	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C137	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C138	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C139	1-123-611-00	ELECT	1MF	20%	50V
C140	1-124-442-00	ELECT	330MF	20%	6.3V
C141	1-124-245-00	ELECT	4.7MF	20%	35V
C142	1-124-245-00	ELECT	4.7MF	20%	35V
C143	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C144	1-123-618-00	ELECT	22MF	20%	6.3V
C145	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C146	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C147	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C148	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C149	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C150	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C151	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C152	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C153	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C154	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C155	1-124-587-11	ELECT	220MF	20%	6.3V
C156	1-124-257-00	ELECT	2.2MF	20%	50V
C157	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C158	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C159	1-124-222-00	ELECT	22MF	20%	6.3V
C161	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C163	1-124-245-00	ELECT	4.7MF	20%	35V
C164	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C165	1-163-005-00	CERAMIC CHIP	470PF	10%	50V
C166	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C167	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C168	1-124-257-00	ELECT	2.2MF	20%	50V
C169	1-123-615-00	ELECT	4.7MF	20%	35V
C170	1-123-618-00	ELECT	22MF	20%	6.3V
C171	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C172	1-124-245-00	ELECT	4.7MF	20%	35V
C173	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C174	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C175	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C176	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C177	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C178	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C179	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C180	1-123-617-00	ELECT	10MF	20%	16V
C181	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C182	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C183	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C184	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C185	1-123-661-00	ELECT	100MF	20%	6.3V
C186	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C187	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C188	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C190	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C191	1-163-129-00	CERAMIC CHIP	330PF	10%	50V
C192	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C193	1-163-129-00	CERAMIC CHIP	330PF	10%	50V
C194	1-163-107-00	CERAMIC CHIP	39PF	5%	50V
C195	1-163-119-00	CERAMIC CHIP	120PF	5%	50V
C196	1-163-012-00	CERAMIC CHIP	0.0018MF	10%	50V
C197	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C200	1-124-249-00	ELECT	0.1MF	20%	50V
C201	1-124-252-00	ELECT	0.33MF	20%	50V
C202	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C203	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C204	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C205	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C206	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C207	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C208	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25V
C209	1-124-239-00	ELECT	6.8MF	20%	25V
C210	1-124-257-00	ELECT	2.2MF	20%	50V

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
C211	1-124-233-00	ELECT	10MF	20%	16V
C212	1-124-255-00	ELECT	1MF	20%	50V
C213	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C214	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C215	1-124-251-00	ELECT	0.22MF	20%	50V
C216	1-124-257-00	ELECT	2.2MF	20%	50V
C217	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C218	1-124-257-00	ELECT	2.2MF	20%	50V
C219	1-163-129-00	CERAMIC CHIP	330PF	10%	50V
C220	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C221	1-124-257-00	ELECT	2.2MF	20%	50V
C222	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C224	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C225	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C226	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C227	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C228	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C229	1-163-115 00	CERAMIC CHIP	82PF	5%	50V
C230	1-124-233-00	ELECT	10MF	20%	16V
C231	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C232	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C233	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C234	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C235	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V
C236	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C237	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C239	1-163-145-00	CERAMIC CHIP	0.0015MF	10%	50V
C244	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C247	1-124-638-11	ELECT	22MF	20%	10V
C248	1-124-222-00	ELECT	22MF	20%	6.3V
C249	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C250	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C251	1-163-074-00	CERAMIC CHIP	0.033MF	10%	25V
C252	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25V
C253	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25V
C254	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C255	1-124-225-00	ELECT	100MF	20%	6.3V
C256	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V
C257	1-124-271-00	ELECT	1MF	20%	50V
C259	1-124-222-00	ELECT	22MF	20%	6.3V
C260	1-124-224-00	ELECT	47MF	20%	6.3V
C261	1-123-617-00	ELECT	10MF	20%	16V
C262	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C263	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C264	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C265	1-123-612-00	ELECT	2.2MF	20%	50V
C266	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V
C267	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V
C270	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C271	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C301	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C302	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C303	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C304	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C305	1-163-021-00	CERAMIC CHIP	0.01MF		50V

CONNECTOR

Ref.No	Part No.	Description
CN001	1-564-610-21	CONNECTOR, BOARD TO BOARD
CN002	1-564-610-21	CONNECTOR, BOARD TO BOARD
CN003	1-564-610-21	CONNECTOR, BOARD TO BOARD
CN101	*1-564-005-00	PIN, CONNECTOR 6P
CN102	*1-564-001-11	PIN, CONNECTOR 2P
CN103	*1-564-002-00	PIN, CONNECTOR 3P
CN104	1-562-582-11	SOCKET, CONNECTOR 24P
CN109	*1-564-013-00	PIN, CONNECTOR 3P
CN110	1-557-554-11	CABLE, FLAT (26 CORE)

CP101 COMPOSITION CIRCUIT BLOCK

Ref.No	Part No.	Description
D1	⚠8-719-100-67	DIODE RD13E-B1
D2	⚠8-719-100-67	DIODE RD13E-B1
D3	⚠8-719-100-47	DIODE RD8.2E-B1
D4	⚠8-719-100-47	DIODE RD8.2E-B1
D5	⚠8-719-100-47	DIODE RD8.2E-B1
D6	⚠8-719-100-47	DIODE RD8.2E-B1
D7	⚠8-719-100-47	DIODE RD8.2E-B1
D8	⚠8-719-100-47	DIODE RD8.2E-B1
D9	⚠8-719-100-47	DIODE RD8.2E-B1
D10	⚠8-719-100-47	DIODE RD8.2E-B1
D11	⚠8-719-100-47	DIODE RD8.2E-B1
D12	⚠8-719-100-47	DIODE RD8.2E-B1

TRIMMER

Ref.No	Part No.	Description
CV101	1-141-227-00	CAP, CERAMIC TRIMMER 20P

DIODE

Ref.No	Part No.	Description
D101	8-719-101-23	DIODE 1SS123
D102	8-719-100-03	DIODE 1S2835
D103	⚠8-719-100-03	DIODE 1S2835
D104	8-719-100-03	DIODE 1S2835

DELAY LINE

Ref.No	Part No.	Description
DL101	1-415-375-11	DELAY LINE, DUAL-1H (3.58MHz)

FILTER

Ref.No	Part No.	Description
FL101	1-415-371-11	Y DL
FL102	1-235-393-11	Y LPF
FL103	1-235-397-11	PB C BPF
FL104	1-235-399-11	REC C BPF
FL105	1-409-386-11	C E TRAP
FL106	1-567-306-11	FILTER, CERAMIC
FL107	1-235-396-11	BPF (47KHz)
FL108	1-235-395-11	BPF (16KHz)

IC

Ref.No	Part No.	Description
IC101	8-752-003-00	IC CX20030

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part numer specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

VI-6

Ref.No	Part No.	Description	Remark
IC102	8-752-003-10	IC CX20031	
IC103	8-752-202-10	IC CX22021	
IC104	8-752-003-20	IC CX20032	
IC105	8-759-914-56	IC CX23054	
IC106	8-752-202-20	IC CX22022	
IC107	8-757-991-00	IC CX7991	
		COIL	
L101	1-407-169-XX	MICRO INDUCTOR 100UH	
L103	1-407-168-XX	MICRO INDUCTOR 82UH	
L104	1-407-169-XX	MICRO INDUCTOR 100UH	
L105	1-408-986-21	MICRO INDUCTOR 270UH	
L106	1-408-987-21	MICRO INDUCTOR 330UH	
L107	1-408-986-21	MICRO INDUCTOR 270UH	
L109	1-408-987-21	MICRO INDUCTOR 330UH	
L110	1-407-166-XX	MICRO INDUCTOR 56UH	
L111	1-408-960-21	MICRO INDUCTOR 1.5UH	
L112	1-408-960-21	MICRO INDUCTOR 1.5UH	
L113	1-408-984-21	MICRO INDUCTOR 150UH	
L114	1-407-167-XX	MICRO INDUCTOR 68UH	
L115	1-407-168-XX	MICRO INDUCTOR 82UH	
L116	1-407-165-XX	MICRO INDUCTOR 47UH	
L117	1-407-189-XX	MICRO INDUCTOR 15UH	
L118	1-408-983-21	MICRO INDUCTOR 120UH	
L119	1-410-072-21	MICRO INDUCTOR 820UH	
L120	1-408-983-21	MICRO INDUCTOR 120UH	
L121	1-407-172-XX	MICRO INDUCTOR 180UH	
L122	1-407-163-XX	MICRO INDUCTOR 33UH	
L123	1-408-948-00	MICRO INDUCTOR 220UH	
L124	1-407-161-XX	MICRO INDUCTOR 22UH	
L125	1-408-984-21	MICRO INDUCTOR 150UH	
L126	1-408-982-11	MICRO INDUCTOR 100UH	
L128	1-408-987-21	MICRO INDUCTOR 330UH	
L129	1-408-983-21	MICRO INDUCTOR 120UH	
L130	1-408-984-21	MICRO INDUCTOR 150UH	
L131	1-407-167-XX	MICRO INDUCTOR 68UH	
		VARIABLE COIL	
LV101	1-459-547-11	COIL, VARIABLE 15UH	
		TRANSISTOR	
Q101	8-729-100-66	TRANSISTOR 2SC1623	
Q102	8-729-312-22	TRANSISTOR 2SA1122	
Q103	8-729-312-22	TRANSISTOR 2SA1122	
Q104	8-729-312-22	TRANSISTOR 2SA1122	
Q105	8-729-312-22	TRANSISTOR 2SA1122	
Q106	8-729-901-03	TRANSISTOR DTC144WK	
Q107	8-729-901-03	TRANSISTOR DTC144WK	
Q108	8-729-901-03	TRANSISTOR DTC144WK	
Q109	8-729-901-03	TRANSISTOR DTC144WK	
Q110	8-729-901-03	TRANSISTOR DTC144WK	
Q111 ⚠	8-729-100-76	TRANSISTOR 2SA812	

Ref.No	Part No.	Description				Remark
Q112	8-729-100-66	TRANSISTOR 2SC1623				
Q113	8-729-312-22	TRANSISTOR 2SA1122				
Q114	8-729-312-22	TRANSISTOR 2SA1122				
Q115	8-729-100-66	TRANSISTOR 2SC1623				
Q117	8-729-100-66	TRANSISTOR 2SC1623				
Q118 ⚠	8-729-100-76	TRANSISTOR 2SA812				
Q119	8-729-100-66	TRANSISTOR 2SC1623				
Q120	8-729-100-76	TRANSISTOR 2SA812				
Q121	8-729-100-66	TRANSISTOR 2SC1623				
Q122	8-729-900-99	TRANSISTOR DTA144WK				
Q123	8-729-310-63	TRANSISTOR 2SK160				
Q124	8-729-900-99	TRANSISTOR DTA144WK				
Q125	8-729-312-22	TRANSISTOR 2SA1122				
		RESISTOR				
R101	1-216-047-00	METAL CHIP	820	5%	1/10W	
R102	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R103	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R104	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R105	1-216-039-00	METAL CHIP	390	5%	1/10W	
R106	1-216-043-00	METAL CHIP	560	5%	1/10W	
R107	1-216-043-00	METAL CHIP	560	5%	1/10W	
R108	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R109	1-216-047-00	METAL CHIP	820	5%	1/10W	
R110	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R111	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R112	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R113	1-216-101-00	METAL CHIP	150K	5%	1/10W	
R114	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R115	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R116	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R117	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R118	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R119	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R120	1-216-045-00	METAL CHIP	680	5%	1/10W	
R121	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R122	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R123	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R124	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R125	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R126	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R127	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R128	1-216-041-00	METAL CHIP	470	5%	1/10W	
R129	1-216-041-00	METAL CHIP	470	5%	1/10W	
R130	1-216-039-00	METAL CHIP	390	5%	1/10W	
R131	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R132	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R133	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R134	1-216-099-00	METAL CHIP	120K	5%	1/10W	
R135	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R136	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R137	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R138	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R139	1-216-045-00	METAL CHIP	680	5%	1/10W	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part numer specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R140	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R141	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R142	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R143	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R144	1-216-093-00	METAL CHIP	68K	5%	1/10W	
R145	1-216-021-00	METAL CHIP	68	5%	1/10W	
R146	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R147	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R148	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R149	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R150	1-216-125-00	METAL CHIP	1.5M	5%	1/10W	
R151	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R152	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R153	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R154	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R155	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R156	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R157	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R158	1-216-041-00	METAL CHIP	470	5%	1/10W	
R159	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R160	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R161	1-216-041-00	METAL CHIP	470	5%	1/10W	
R162	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R163	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R164	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R165	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R166	1-216-047-00	METAL CHIP	820	5%	1/10W	
R167	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R168	1-216-019-00	METAL CHIP	56	5%	1/10W	
R169	1-216-025-00	METAL CHIP	100	5%	1/10W	
R170	1-216-029-00	METAL CHIP	150	5%	1/10W	
R171	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R172	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R174	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R175	1-216-087-00	METAL CHIP	39K	5%	1/10W	
R176	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R177	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R178	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R179	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R180	1-216-029-00	METAL CHIP	150	5%	1/10W	
R181	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R182	1-216-045-00	METAL CHIP	680	5%	1/10W	
R183	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R184	1-216-027-00	METAL CHIP	120	5%	1/10W	
R185	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R186	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R187	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R188	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R189	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R190	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R191	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R192	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R193	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R194	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R195	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R196	1-216-047-00	METAL CHIP	820	5%	1/10W	
R197	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R198	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R199	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R200	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R201	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R202	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R203	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R204	1-216-035-00	METAL CHIP	270	5%	1/10W	
R205	1-216-035-00	METAL CHIP	270	5%	1/10W	
R206	1-216-043-00	METAL CHIP	560	5%	1/10W	
R207	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R209	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R210	1-216-041-00	METAL CHIP	470	5%	1/10W	
R211	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R212	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R214	1-216-043-00	METAL CHIP	560	5%	1/10W	
R215	1-216-043-00	METAL CHIP	560	5%	1/10W	
R216	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R217	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R218	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R219	1-216-103-00	METAL CHIP	180K	5%	1/10W	
R220	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R221	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R222	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R223	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R224	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R225	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R226	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R227	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R228	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R229	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R230	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R231	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R232	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R233	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R234	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R235	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R236	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R237	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R238	1-216-115-00	METAL CHIP	560K	5%	1/10W	
R239	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R240	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R242	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R243	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R244	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R245	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R246	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R247	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R248	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R249	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R250	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
R251	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R252	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R253	1-216-039-00	METAL CHIP 390 5% 1/10W	
R254	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R257	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R259	1-216-095-00	METAL CHIP 82K 5% 1/10W	
R260	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R261	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R262	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R263	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R264	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R265	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R266	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R267	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R268	1-216-117-00	METAL CHIP 680K 5% 1/10W	
R269	1-216-015-00	METAL CHIP 39 5% 1/10W	
R270	1-216-015-00	METAL CHIP 39 5% 1/10W	
R272	1-216-115-00	METAL CHIP 560K 5% 1/10W	
R273	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R274	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R275	1-216-039-00	METAL CHIP 390 5% 1/10W	
R276	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R277	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R278	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R279	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R280	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R281	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R282	1-216-117-00	METAL CHIP 680K 5% 1/10W	
R284	1-216-295-00	METAL CHIP 0 5% 1/10W	
R285	1-216-296-00	METAL CHIP 0 5% 1/8W	
R286	1-216-025-00	METAL CHIP 100 5% 1/10W	
R291	1-216-025-00	METAL CHIP 100 5% 1/10W	
R292	1-216-025-00	METAL CHIP 100 5% 1/10W	
R296	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R297	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R298	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R300	1-216-295-00	METAL CHIP 0 5% 1/10W	
R301	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R302	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R303	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R304	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R305	1-216-041-00	METAL CHIP 470 5% 1/10W	
R306	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R307	1-216-085-00	METAL CHIP 33K 5% 1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV101	1-230-519-11	RES, ADJ, METAL GLAZE 470	
RV102	1-226-710-00	RES, ADJ, SOLID 10K	
RV103	1-230-522-11	RES, ADJ, SOLID 4.7K	
RV104	1-230-522-11	RES, ADJ, SOLID 4.7K	
RV105	1-226-710-00	RES, ADJ, SOLID 10K	
RV106	1-226-710-00	RES, ADJ, SOLID 10K	
RV107	1-226-710-00	RES, ADJ, SOLID 10K	
RV108	1-230-523-11	RES, ADJ, METAL GLAZE 10K	
RV109	1-230-523-11	RES, ADJ, METAL GLAZE 10K	
RV110	1-230-526-11	RES, ADJ, METAL GLAZE 47K	
RV111	1-230-524-11	RES, ADJ, METAL GLAZE 22K	

CRYSTAL

Ref.No	Part No.	Description	Remark
X101	1-567-303-11	VIBRATOR, CERAMIC (10.7MHz)	
X102	1-527-396-31	OSCILLATOR, CRYSTAL (3.58MHz)	
X103	1-567-304-11	VIBRATOR, CRYSTAL (5.9MHz)	

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*A-7070-142-A ED-12 BOARD, COMPLETE
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CAPACITOR

Ref.No	Part No.	Description	Remark
C901	1-135-088-21	TANTAL. CHIP 2.2MF 20% 20V	

DIODE

Ref.No	Part No.	Description	Remark
D901	8-719-100-05	DIODE 1S2837	

COIL

Ref.No	Part No.	Description	Remark
L901	1-408-789-21	INDUCTOR CHIP 100UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q901	8-729-901-03	TRANSISTOR DTC144WK	
Q902	8-729-900-99	TRANSISTOR DTA144WK	

RESISTOR

Ref.No	Part No.	Description	Remark
R901	1-216-043-00	METAL CHIP 560 5% 1/10W	
R902	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R903	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R904	1-216-073-00	METAL CHIP 10K 5% 1/10W	

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*A-7060-214-A AW-1 BOARD, COMPLETE
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CAPACITOR

Ref.No	Part No.	Description	Remark
C702	1-123-661-00	ELECT 100MF 20% 6.3V	
C703	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C704	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C705	1-123-608-00	ELECT 0.22MF 20% 50V	
C706	1-131-378-00	TANTALUM 15MF 10% 10V	
C717	1-131-408-00	TANTALUM 1MF 20% 25V	
C719	1-124-225-00	ELECT 100MF 20% 6.3V	
C720	1-123-611-00	ELECT 1MF 20% 50V	
C721	1-123-661-00	ELECT 100MF 20% 6.3V	
C722	1-163-141-00	CERAMIC CHIP 0.001MF 5% 50V	
C723	1-163-141-00	CERAMIC CHIP 0.001MF 5% 50V	
C724	1-163-141-00	CERAMIC CHIP 0.001MF 5% 50V	
C725	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C726	1-163-077-00	CERAMIC CHIP 0.1MF 50V	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
C727	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C728	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C729	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C730	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C732	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C733	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C734	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C735	1-131-374-00	TANTALUM	33MF	20%	16V
C742	1-124-270-11	ELECT	0.47MF	20%	50V
C743	1-124-270-11	ELECT	0.47MF	20%	50V
C744	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C746	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C747	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C748	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C749	1-124-275-00	ELECT	2.2MF	20%	35V
C750	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V
C751	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C752	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C753	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C755	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C756	1-124-225-00	ELECT	100MF	20%	6.3V
C757	1-123-661-00	ELECT	100MF	20%	6.3V
C758	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C759	1-124-236-00	ELECT	47MF	20%	16V
C760	1-124-236-00	ELECT	47MF	20%	16V
C761	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C762	1-124-234-00	ELECT	22MF	20%	16V
C763	1-124-234-00	ELECT	22MF	20%	16V
C764	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C765	1-123-620-00	ELECT	10MF	20%	35V
C766	1-123-620-00	ELECT	10MF	20%	35V
C767	1-124-229-00	ELECT	33MF	20%	6.3V
C768	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C769	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V

CONNECTOR

Ref.No	Part No.	Description
CN701	*1-564-018-11	PIN, CONNECTOR 8P
CN702	*1-564-016-00	PIN, CONNECTOR 6P
CN703	*1-564-014-00	PIN, CONNECTOR 4P

DIODE

Ref.No	Part No.	Description
D702	8-719-100-05	DIODE 1S2837
D706	8-719-100-05	DIODE 1S2837
D708	8-719-100-05	DIODE 1S2837
D709	8-719-100-05	DIODE 1S2837
D710	8-719-100-03	DIODE 1S2835
D711	8-719-100-05	DIODE 1S2837
D715	8-719-101-23	DIODE 1SS123
D716	8-719-100-05	DIODE 1S2837
D717	8-719-100-05	DIODE 1S2837

IC

Ref.No	Part No.	Description
IC701	8-759-201-00	IC TC4052BF
IC703	8-759-103-03	IC UPD6107G
IC705⚠	8-759-100-94	IC UPC358G2
IC706	8-759-908-12	IC CX20056

COIL

Ref.No	Part No.	Description
L708	1-410-124-11	COIL, CHOKE 47UH
L709	1-410-124-11	COIL, CHOKE 47UH
L710	1-408-970-21	MICRO INDUCTOR 10UH
L711	1-408-970-21	MICRO INDUCTOR 10UH

TRANSISTOR

Ref.No	Part No.	Description
Q704	8-729-901-03	TRANSISTOR DTC144WK
Q707	8-729-901-04	TRANSISTOR DTA114EK
Q708	8-729-901-04	TRANSISTOR DTA114EK
Q709	8-729-100-66	TRANSISTOR 2SC1623
Q710	8-729-100-76	TRANSISTOR 2SA812
Q711	8-729-100-76	TRANSISTOR 2SA812
Q712	8-729-100-66	TRANSISTOR 2SC1623
Q713	8-729-100-76	TRANSISTOR 2SA812
Q714	8-729-100-76	TRANSISTOR 2SA812
Q715	8-729-100-66	TRANSISTOR 2SC1623
Q716	8-729-100-76	TRANSISTOR 2SA812
Q717	8-729-901-04	TRANSISTOR DTA114EK
Q718	8-729-100-76	TRANSISTOR 2SA812
Q721	8-729-100-66	TRANSISTOR 2SC1623
Q722	8-729-100-66	TRANSISTOR 2SC1623
Q723	8-729-901-03	TRANSISTOR DTC144WK
Q724	8-729-100-76	TRANSISTOR 2SA812
Q725	8-729-100-66	TRANSISTOR 2SC1623
Q726	8-729-100-66	TRANSISTOR 2SC1623
Q728	8-729-901-03	TRANSISTOR DTC144WK
Q729	8-729-901-04	TRANSISTOR DTA114EK
Q730	8-729-100-76	TRANSISTOR 2SA812
Q732	8-729-901-03	TRANSISTOR DTC144WK
Q733	8-729-100-76	TRANSISTOR 2SA812
Q734	8-729-100-66	TRANSISTOR 2SC1623

RESISTOR

Ref.No	Part No.	Description			
R704	1-216-091-00	METAL CHIP	56K	5%	1/10W
R705	1-216-091-00	METAL CHIP	56K	5%	1/10W
R707	1-216-077-00	METAL CHIP	15K	5%	1/10W
R708	1-216-077-00	METAL CHIP	15K	5%	1/10W
R709	1-216-035-00	METAL CHIP	270	5%	1/10W
R712	1-216-107-00	METAL CHIP	270K	5%	1/10W
R714	1-216-035-00	METAL CHIP	270	5%	1/10W
R715	1-216-021-00	METAL CHIP	68	5%	1/10W
R716	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R717	1-216-121-00	METAL CHIP	1M	5%	1/10W
R718	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R719	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R722	1-216-073-00	METAL CHIP	10K	5%	1/10W
R723	1-216-073-00	METAL CHIP	10K	5%	1/10W
R724	1-216-075-00	METAL CHIP	12K	5%	1/10W

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part numer specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R725	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R726	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R727	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R728	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R729	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R730	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R731	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R732	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R733	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R734	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R735	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R736	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R737	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R738	1-216-087-00	METAL CHIP	39K	5%	1/10W	
R739	1-216-087-00	METAL CHIP	39K	5%	1/10W	
R740	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R741	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R742	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R743	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R744	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R745	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R746	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R747	1-216-099-00	METAL CHIP	120K	5%	1/10W	
R748	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R749	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R750	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R751	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R753	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R755	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R756	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R757	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R759	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R760	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R761	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R762	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R763	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R764	1-216-101-00	METAL CHIP	150K	5%	1/10W	
R765	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R766	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R767	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R768	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R769	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R771	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R772	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R775	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R778	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R780	1-216-125-00	METAL CHIP	1.5M	5%	1/10W	
R781	1-216-107-00	METAL CHIP	270K	5%	1/10W	
R784	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R785	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R786	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R787	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R788	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R794	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R795	1-216-085-00	METAL CHIP	33K	5%	1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV701	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV702	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV703	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV704	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV706	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV707	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV708	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV709	1-228-827-21	RES, ADJ, METAL GLAZE 2.2K	
RV710	1-228-828-21	RES, ADJ, METAL GLAZE 4.7K	
RV711	1-228-877-00	RES, ADJ, METAL GLAZE 100K	

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*A-7060-095-A RS-2 BOARD, COMPLETE
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*3-686-814-01 HOLDER, REEL SENSOR

CAPACITOR

Ref.No	Part No.	Description			
C501	1-124-234-00	ELECT	22MF	20%	10V
C601	1-124-225-00	ELECT	100MF	20%	6.3V

CONNECTOR

Ref.No	Part No.	Description
CN515	*1-564-012-00	PIN, CONNECTOR 2P
CN516	*1-564-012-00	PIN, CONNECTOR 2P

DIODE

Ref.No	Part No.	Description
D501	8-719-100-03	DIODE 1S2835
D502	8-719-100-03	DIODE 1S2835
D503	8-719-100-03	DIODE 1S2835

IC

Ref.No	Part No.	Description
IC501 ⚠	8-759-910-70	IC MB3763PS
IC502	8-759-908-81	IC MB3763PF

DIODE

Ref.No	Part No.	Description
PH601	8-719-751-42	DIODE NJL5141E
PH602	8-719-751-42	DIODE NJL5141E
PH603	8-719-751-42	DIODE NJL5141E

TRANSISTOR

Ref.No	Part No.	Description
Q601	8-729-100-66	TRANSISTOR 2SC1623
Q602	8-729-100-66	TRANSISTOR 2SC1623
Q603	8-729-100-66	TRANSISTOR 2SC1623
Q604	8-729-100-66	TRANSISTOR 2SC1623
Q605	8-729-100-66	TRANSISTOR 2SC1623
Q606	8-729-100-66	TRANSISTOR 2SC1623
Q607	8-729-100-66	TRANSISTOR 2SC1623

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Replace only with part numer specified.

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Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

RESISTOR

Ref.No	Part No.	Description				Remark
R601	1-216-180-00	METAL CHIP	180	5%	1/8W	
R602	1-216-180-00	METAL CHIP	180	5%	1/8W	
R603	1-216-160-00	METAL CHIP	27	5%	1/8W	
R604	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R605	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R606	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R607	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R608	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R609	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R610	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R611	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R612	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R613	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R614	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R615	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R616	1-216-180-00	METAL CHIP	180	5%	1/8W	

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*A-7060-096-A FE-2 BOARD, COMPLETE

CAPACITOR

Ref.No	Part No.	Description			Remark
C101	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C102	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C103	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C104	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C105	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C106	1-163-034-00	CERAMIC CHIP	0.033MF		50V

CONNECTOR

Ref.No	Part No.	Description
CN113	*1-564-002-00	PIN, CONNECTOR 3P

COIL

Ref.No	Part No.	Description
L101	1-407-189-XX	MICRO INDUCTOR 15UH
L102	1-408-970-21	MICRO INDUCTOR 10UH

TRANSISTOR

Ref.No	Part No.	Description
Q101	8-729-100-76	TRANSISTOR 2SA812
Q102	8-729-117-54	TRANSISTOR 2SA1175

RESISTOR

Ref.No	Part No.	Description			
R101	1-216-091-00	METAL CHIP	56K	5%	1/10W
R102	1-216-081-00	METAL CHIP	22K	5%	1/10W
R103	1-216-039-00	METAL CHIP	390	5%	1/10W
R104	1-216-045-00	METAL CHIP	680	5%	1/10W
R105	1-216-308-00	METAL CHIP	4.7	5%	1/10W

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*A-7060-200-A MA-13 BOARD, COMPLETE

CAPACITOR

Ref.No	Part No.	Description			Remark
C401	1-124-225-00	ELECT	100MF	20%	6.3V
C402	1-124-225-00	ELECT	100MF	20%	6.3V
C403	1-131-401-00	TANTALUM	0.068MF	20%	35V
C404	1-131-401-00	TANTALUM	0.068MF	20%	35V
C406	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C408	1-124-245-00	ELECT	4.7MF	20%	35V
C409	1-124-224-00	ELECT	47MF	20%	6.3V
C410	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V

CONNECTOR

Ref.No	Part No.	Description
CN013	*1-564-878-11	PIN, BOARD TO BOARD(L TYPE) 4P

TRANSISTOR

Ref.No	Part No.	Description
Q401	⚠ 8-729-162-44	TRANSISTOR 2SB624-BV4
Q402	8-729-271-23	TRANSISTOR 2SC2712
Q403	8-729-271-23	TRANSISTOR 2SC2712

RESISTOR

Ref.No	Part No.	Description			
R401	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R402	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R403	1-216-162-00	METAL CHIP	33	5%	1/8W
R404	1-216-081-00	METAL CHIP	22K	5%	1/10W
R405	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R406	1-216-079-00	METAL CHIP	18K	5%	1/10W
R408	1-216-035-00	METAL CHIP	270	5%	1/10W
R409	1-216-079-00	METAL CHIP	18K	5%	1/10W
R410	1-216-075-00	METAL CHIP	12K	5%	1/10W
R411	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R412	1-216-043-00	METAL CHIP	560	5%	1/10W
R413	1-216-037-00	METAL CHIP	330	5%	1/10W

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*1-616-471-11 MJ-8 BOARD

CONNECTOR

Ref.No	Part No.	Description
CN406	*1-564-014-00	PIN, CONNECTOR 4P

DIODE

Ref.No	Part No.	Description
D401	⚠ 8-719-106-17	DIODE RD6.8M-B2

JACK

Ref.No	Part No.	Description
J401	1-507-957-11	JACK (2 GANG)

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When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
	*A-7060-201-A	ZM-3 BOARD, COMPLETE *********************	

CAPACITOR

Ref.No	Part No.	Description	Remark
C702	1-124-604-00	ELECT 330MF 20% 10V	
C703	1-123-822-00	ELECT 47MF 20% 10V	
C704	1-123-645-00	ELECT 33MF 20% 10V	
C705	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C706	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C707	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C708	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C709	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C710	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN711	*1-564-001-11	PIN, CONNECTOR 2P	
CN712	*1-564-002-00	PIN, CONNECTOR 3P	
CN713	*1-564-001-11	PIN, CONNECTOR 2P	
CN714	*1-564-002-00	PIN, CONNECTOR 3P	
CN715	*1-564-008-00	PIN, CONNECTOR 9P	
CN716	*1-564-003-00	PIN, CONNECTOR 4P	
CN717	*1-564-003-00	PIN, CONNECTOR 4P	

COIL

Ref.No	Part No.	Description	Remark
L701	1-407-718-00	MICRO INDUCTOR 1.2MMH	

IC LINK

Ref.No	Part No.	Description	Remark
PS701	⚠1-532-637-11	LINK, IC (ICP-N25)	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q701	8-729-100-76	TRANSISTOR 2SA812	
Q702	8-729-100-76	TRANSISTOR 2SA812	
Q703	8-729-103-72	TRANSISTOR 2SD1005	
Q704	8-729-100-66	TRANSISTOR 2SC1623	
Q705	8-729-100-66	TRANSISTOR 2SC1623	

RESISTOR

Ref.No	Part No.	Description	Remark
R701	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R702	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R703	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R704	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R705	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R706	1-216-158-00	METAL CHIP 22 5% 1/8W	
R707	1-216-158-00	METAL CHIP 22 5% 1/8W	
R709	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R710	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R711	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R712	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R713	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R714	⚠1-244-843-00	CARBON 56 5% 1/2W	
R715	1-216-049-00	METAL CHIP 1K 5% 1/10W	

Ref.No	Part No.	Description	Remark
	*A-7060-202-A	RR-10 BOARD, COMPLETE **********************	

CAPACITOR

Ref.No	Part No.	Description	Remark
C751	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C752	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C753	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C754	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C755	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C756	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C757	1-124-229-00	ELECT 33MF 20% 6.3V	
C758	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C759	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	

DIODE

Ref.No	Part No.	Description	Remark
D751	8-719-918-67	DIODE GL-1EG102	

RESISTOR

Ref.No	Part No.	Description	Remark
R751	1-246-993-00	CARBON 470 5% 1/8W	F
R752	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R754	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R756	1-216-073-00	METAL CHIP 10K 5% 1/10W	

SWITCH

Ref.No	Part No.	Description	Remark
S751	1-554-973-11	SWITCH, SLIDE	
S752	1-554-174-00	SWITCH, KEY BOARD	
S753	1-554-364-00	SWITCH, SLIDE	
S754	1-554-945-12	SWITCH, SLIDE	
S755	1-553-977-00	SWITCH, SLIDE	
S756	1-554-541-12	SWITCH, TACT	

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Ref.No	Part No.	Description	Remark
	*A-7070-024-A	LD-1 BOARD, COMPLETE ********************	

DIODE

Ref.No	Part No.	Description	Remark
D901	8-719-928-54	DIODE GL-450S	

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MS-4 BOARD
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CAPACITOR

Ref.No	Part No.	Description	Remark
C901	1-163-038-00	CERAMIC CHIP 0.1MF 25V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN905	*1-564-613-11	PIN, CONNECTOR (HOOK TYPE)	

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When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark

LS-9 BOARD
****

CONNECTOR

Ref.No	Part No.	Description	Remark
CN904	*1-564-613-21	PIN, CONNECTOR (HOOK TYPE)	

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*1-613-261-11 EP-1 BOARD
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JACK

Ref.No	Part No.	Description	Remark
J491	1-507-921-00	JACK	

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*1-613-262-11 EF-2 BOARD
****

CAPACITOR

Ref.No	Part No.	Description				Remark
C772	1-161-039-00	CERAMIC	0.001MF	10%	25V	
C773	1-161-039-00	CERAMIC	0.001MF	10%	25V	
C774	1-161-013-00	CERAMIC	0.01MF	10%	25V	
C775	1-161-039 00	CERAMIC	0.001MF	10%	25V	
C776	1-161-039-00	CERAMIC	0.001MF	10%	25V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN772	1-562-183-00	SOCKET 8P	

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*A-7060-204-A AZ-2 BOARD, COMPLETE
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A complete AZ-2 board is stocked with a complete PA-7 board as a gang for repair parts. They can not be ordered individually.

Ref.No	Part No.	Description				Remark
	1-216-596-11	METAL CHIP	2.7K	1%	1/10W	

CAPACITOR

Ref.No	Part No.	Description				Remark
C020	1-123-622-00	ELECT	22MF	20%	16V	
C021	1-123-611-00	ELECT	1MF	20%	50V	
C022	1-123-616-00	ELECT	4.7MF	20%	25V	
C023	1-123-616-00	ELECT	4.7MF	20%	25V	
C024	1-123-821-00	ELECT	47MF	20%	16V	
C025	1-124-472-11	ELECT	470MF	20%	10V	
C026	1-124-290-00	ELECT	47MF	20%	10V	
C027	1-124-444-00	ELECT	220MF	20%	10V	
C028	1-124-363-00	ELECT	330MF	20%	10V	
C029	1-163-145-00	CERAMIC CHIP	0.0015MF	10%	50V	
C030	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C031	1-163-104-00	CERAMIC CHIP	30PF	5%	50V	
C032	1-163-104-00	CERAMIC CHIP	30PF	5%	50V	
C033	1-123-622-00	ELECT	22MF	20%	16V	
C034	1-123-821-00	ELECT	47MF	20%	16V	
C035	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN002	*1-564-012-00	PIN, CONNECTOR 2P	
CN003	*1-564-001-11	PIN, CONNECTOR 2P	
CN004	*1-564-001-11	PIN, CONNECTOR 2P	
CN005	*1-564-001-11	PIN, CONNECTOR 2P	

DIODE

Ref.No	Part No.	Description	Remark
D001	8-719-100-23	DIODE RD4.3E-B2	
D002	8-719-101-36	DIODE RD3.3E-L1	
D003	8-719-101-61	DIODE RD6.2E-L2	
D004	8-719-101-61	DIODE RD6.2E-L2	
D010	8-719-815-55	DIODE 1S1555	
D011	8-719-815-55	DIODE 1S1555	
D012	8-719-815-55	DIODE 1S1555	

IC

Ref.No	Part No.	Description	Remark
IC011	8-759-100-95	IC UPC324G2	

IC LINK

Ref.No	Part No.	Description	Remark
PS001⚠	1-532-605-11	LINK, IC (ICP-N10)	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q010	8-729-109-44	TRANSISTOR 2SK94	
Q011	8-729-109-44	TRANSISTOR 2SK94	
Q012	8-729-100-66	TRANSISTOR 2SC1623	
Q013	8-729-101-07	TRANSISTOR 2SB798	
Q014	8-729-101-07	TRANSISTOR 2SB798	
Q015	8-729-100-66	TRANSISTOR 2SC1623	
Q016	8-729-100-66	TRANSISTOR 2SC1623	
Q017	8-729-100-66	TRANSISTOR 2SC1623	
Q018	8-729-101-07	TRANSISTOR 2SB798	
Q019	8-729-101-07	TRANSISTOR 2SB798	
Q020	8-729-199-92	TRANSISTOR 2SD999	
Q021	8-729-199-92	TRANSISTOR 2SD999	
Q022	8-729-101-07	TRANSISTOR 2SB798	
Q023	8-729-100-66	TRANSISTOR 2SC1623	
Q024	8-729-100-66	TRANSISTOR 2SC1623	
Q025	8-729-199-92	TRANSISTOR 2SD999	
Q026	8-729-199-92	TRANSISTOR 2SD999	
Q027	8-729-100-66	TRANSISTOR 2SC1623	
Q028	8-729-100-66	TRANSISTOR 2SC1623	

RESISTOR

Ref.No	Part No.	Description				Remark
R050	1-216-033-00	METAL CHIP	220	5%	1/10W	
R051	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R052	1-216-033-00	METAL CHIP	220	5%	1/10W	
R053	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R054	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R055	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R056	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R057	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R058	1-216-041-00	METAL CHIP	470	5%	1/10W	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part numer specified.

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When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R059	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R060	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R061	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R062	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R063	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R064	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R066	1-216-037-00	METAL CHIP	330	5%	1/10W	
R067	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R068	1-216-329-11	METAL CHIP	5.1K	1%	1/10W	
R069	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R070	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R071	1-247-125-00	CARBON	560	5%	1/4W	
R072	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R073	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R074	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R075	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R076	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R077	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R078	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R079	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R080	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R081	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R082	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R083	1-247-688-11	CARBON	10	5%	1/4W	
R084	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R085	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R086	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R087	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R088	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R089	1-216-037-00	METAL CHIP	330	5%	1/10W	
R090	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R091	1-216-295-00	METAL CHIP	0	5%	1/10W	
R092	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R093	1-216-033-00	METAL CHIP	220	5%	1/10W	
R094	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R095	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R096	1-246-412-15	CARBON	3	5%	1/4W	
R097	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R099	1-247-085-00	CARBON	12	5%	1/4W	
R100	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R101	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R102	1-247-702-11	CARBON	150	5%	1/4W	
R103	1-247-767-00	CARBON	2.2	5%	1/6W	

THERMISTOR

THP001	⚠ 1-806-887-11	THERMISTOR (POSITIVE)	15Ω

VARIABLE RESISTOR

RV010	1-228-891-00	RES, ADJ, METAL GLAZE	10K
RV011	1-228-891-00	RES, ADJ, METAL GLAZE	10K

The components identified by shading and mark ⚠ are critical for safety.
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Ne les remplacer que par une pièce portant le numéro spécifié.

CRYSTAL

Ref.No	Part No.	Description	Remark
X001	1-567-143-00	OSCILLATOR, CERAMIC	

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***A-7060-204-A PA-7 BOARD, COMPLETE**

A complete PA-7 board is stocked with a complete AZ-2 board as a gang for repair parts. They can not be ordered individually.

*3-707-166-01 CASE (1), SHIELD, PA-5
*3-707-167-01 CASE (2), SHIELD, PA-5

CAPACITOR

C001	1-124-290-00	ELECT	47MF	20%	10V
C002	1-124-290-00	ELECT	47MF	20%	10V
C003	1-123-617-00	ELECT	10MF	20%	16V
C004	1-163-089-00	CERAMIC CHIP	6PF	0.25PF	50V
C005	1-163-089-00	CERAMIC CHIP	6PF	0.25PF	50V
C006	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C007	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C008	1-163-145-00	CERAMIC CHIP	0.0015MF	10%	50V
C009	1-163-005-00	CERAMIC CHIP	470PF	10%	50V
C010	1-163-034-00	CERAMIC CHIP	0.033MF		50V
C011	1-163-145-00	CERAMIC CHIP	0.0015MF	10%	50V
C012	1-163-005-00	CERAMIC CHIP	470PF	10%	50V
C013	1-163-034-00	CERAMIC CHIP	0.033MF		50V
C014	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C015	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C016	1-123-617-00	ELECT	10MF	20%	16V
C017	1-123-617-00	ELECT	10MF	20%	16V

DIODE

D001	8-719-815-55	DIODE 1S1555

IC

IC001	8-759-100-95	IC UPC324G2
IC002	8-759-100-95	IC UPC324G2

TRANSISTOR

Q001	8-729-100-66	TRANSISTOR 2SC1623
Q002	8-729-100-66	TRANSISTOR 2SC1623
Q003	8-729-109-44	TRANSISTOR 2SK94
Q004	8-729-109-44	TRANSISTOR 2SK94
Q005	8-729-109-44	TRANSISTOR 2SK94
Q006	8-729-109-44	TRANSISTOR 2SK94

RESISTOR

R001	1-216-121-00	METAL CHIP	1M	5%	1/10W
R002	1-216-037-00	METAL CHIP	330	5%	1/10W
R003	1-216-045-00	METAL CHIP	680	5%	1/10W
R004	1-216-109-00	METAL CHIP	330K	5%	1/10W
R005	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R006	1-216-109-00	METAL CHIP	330K	5%	1/10W
R007	1-216-045-00	METAL CHIP	680	5%	1/10W
R008	1-216-037-00	METAL CHIP	330	5%	1/10W
R009	1-216-121-00	METAL CHIP	1M	5%	1/10W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R010	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R011	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R012	1-216-099-00	METAL CHIP	120K	5%	1/10W	
R013	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R014	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R015	1-216-099-00	METAL CHIP	120K	5%	1/10W	
R016	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R017	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R018	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R019	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R020	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R021	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R022	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R023	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R024	1-216-029-00	METAL CHIP	150	5%	1/10W	
R025	1-247-879-00	CARBON	100K	5%	1/6W	
R026	1-247-879-00	CARBON	100K	5%	1/6W	
R028	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R029	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R030	1-216-084-00	METAL CHIP	30K	5%	1/10W	
R031	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R032	1-216-115 00	METAL CHIP	560K	5%	1/10W	
R033	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R034	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R035	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R036	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R037	1-216-084-00	METAL CHIP	30K	5%	1/10W	
R038	1-216-115-00	METAL CHIP	560K	5%	1/10W	
R039	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R040	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R041	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R042	1-216-029 00	METAL CHIP	150	5%	1/10W	
R043	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R044	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV001	1-228-895-00	RES, ADJ, METAL GLAZE 100K	
RV002	1-228-895-00	RES, ADJ, METAL GLAZE 100K	

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*1-616-585-11 SS-54 BOARD
****

SWITCH

Ref.No	Part No.	Description	Remark
S702	1-553-349-00	SWITCH, PUSH	

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*1-616-586-11 SS-55 BOARD
****

SWITCH

Ref.No	Part No.	Description	Remark
S703	1-553-349-00	SWITCH, PUSH	

*1-613-263-11 FU-26 BOARD
****

Ref.No	Part No.	Description	Remark
	*1-533-146-00	HOLDER, FUSE	

FUSE

Ref.No	Part No.	Description	Remark
F901	⚠1-532-557-11	FUSE, GLASS TUBE (3.15A 125V)	

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*1-614-872-11 TL-16 BOARD
****

DIODE

Ref.No	Part No.	Description	Remark
D009	8-719-812-44	DIODE TL0124	
D010	8-719-812-41	DIODE TLR124	
D011	8-719-812-42	DIODE TLY124	

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*1-614-871-11 TL-15 BOARD
****

DIODE

Ref.No	Part No.	Description	Remark
D005	8-719-800-24	DIODE TLR147	

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*A-7060-073-A VF-3 BOARD, COMPLETE
****

Ref.No	Part No.	Description	Remark
	1-526-793-21	SOCKET ASSY, CRT	
	*3-662-075-00	COVER, CONTROL	

CAPACITOR

Ref.No	Part No.	Description				Remark
C001	1-124-229-00	ELECT	33MF	20%	10V	
C002	1-163-209-00	CERAMIC CHIP	0.0015MF	5%	50V	
C003	1-124-255-00	ELECT	1MF	20%	50V	
C004	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V	
C005	1-124-233-00	ELECT	10MF	20%	16V	
C006	1-163-131-00	CERAMIC CHIP	390PF	10%	50V	
C007	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V	
C008	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V	
C009	1-124-233-00	ELECT	10MF	20%	16V	
C010	1-124-233-00	ELECT	10MF	20%	16V	
C011	1-131-361-00	TANTALUM	2.2MF	10%	20V	
C012	1-163-209-00	CERAMIC CHIP	0.0015MF	5%	50V	
C013	1-163-143-00	CERAMIC CHIP	0.0012MF	10%	50V	
C014	1-124-604-00	ELECT	330MF	20%	10V	
C015	1-124-471-00	ELECT	1000MF	20%	6.3V	
C016	1-163-033-00	CERAMIC CHIP	0.022MF	10%	50V	
C017	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
C018	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V	
C019	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
C020	1-163-038-00	CERAMIC CHIP	0.1MF		25V	

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When indicating parts by reference number, please include the board name.

VF-3

Ref.No	Part No.	Description			Remark
C021	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C022	1-163-005-00	CERAMIC CHIP	470PF	10%	50V
C023	1-124-140-00	ELECT	220MF	20%	6.3V
C024	1-124-604-00	ELECT	330MF	20%	10V
C025	1-124-255-00	ELECT	1MF	20%	50V
C026	⚠ 1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C027	⚠ 1-163-018-00	CERAMIC CHIP	0.0056MF	10%	50V
C028	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C029	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V
C030	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V
C031	1-102-038-00	CERAMIC	0.001MF	99%	500V
C033	1-102-038-00	CERAMIC	0.001MF	99%	500V
C034	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V
C036	1-123-619-00	ELECT	4.7MF	20%	50V
C043	1-124-255-00	ELECT	1MF	20%	50V
C044	1-163-038-00	CERAMIC CHIP	0.1MF		25V

CONNECTOR

CN001	*1-564-269-00	PIN, CONNECTOR 3P
CN002	*1-564-269-00	PIN, CONNECTOR 3P
CN003	*1-564-002-00	PIN, CONNECTOR 3P

DIODE

D001	8-719-101-23	DIODE 1SS123
D002	8-719-101-23	DIODE 1SS123
D003	8-719-100-03	DIODE 1S2835
D004	⚠ 8-719-105-90	DIODE RD5.6M-B1
D006	8-719-904-05	DIODE 1N4005
D007	8-719-904-05	DIODE 1N4005
D008	8-719-904-05	DIODE 1N4005
D012	8-719-101-23	DIODE 1SS123
D013	8-719-100-03	DIODE 1S2835

IC

IC001	8-759-314-41	IC HA11441

COIL

L001	1-407-167-XX	MICRO INDUCTOR 68UH
L002	⚠ 1-459-549-11	COIL, FERRITE (HLC)
L003	1-408-970-21	MICRO INDUCTOR 10UH

TRANSISTOR

Q001	8-729-100-66	TRANSISTOR 2SC1623
Q002	⚠ 8-729-663-47	TRANSISTOR 2SC1364
Q003	8-729-100-76	TRANSISTOR 2SA812
Q004	8-729-100-66	TRANSISTOR 2SC1623
Q005	8-729-216-32	TRANSISTOR 2SA1163
Q006	8-729-100-66	TRANSISTOR 2SC1623
Q007	⚠ 8-729-100-76	TRANSISTOR 2SA812
Q008	8-729-100-66	TRANSISTOR 2SC1623
Q009	⚠ 8-729-805-13	TRANSISTOR 2SC1475-13
Q010	8-729-100-66	TRANSISTOR 2SC1623

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Ne les remplacer que par une pièce portant le numéro spécifié.

RESISTOR

Ref No.	Part No.	Description				Remark
R001	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R002	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R003	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R004	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R005	1-216-107-00	METAL CHIP	270K	5%	1/10W	
R006	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R007	1-216-001-00	METAL CHIP	10	5%	1/10W	
R008	1-216-025-00	METAL CHIP	100	5%	1/10W	
R009	1-216-031-00	METAL CHIP	180	5%	1/10W	
R010	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R011	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R012	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R013	1-216-087-00	METAL CHIP	39K	5%	1/10W	
R014	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R015	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R016	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R017	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R018	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R019	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R020	1-216-001-00	METAL CHIP	10	5%	1/10W	
R021	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R022	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R023	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R024	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R025	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R026	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R027	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R028	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R029	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R030	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R031	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R032	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R033	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R034	1-216-107-00	METAL CHIP	270K	5%	1/10W	
R035	1-216-131-11	METAL CHIP	2.7M	5%	1/10W	
R036	1-216-131-11	METAL CHIP	2.7M	5%	1/10W	
R037	1-216-035-00	METAL CHIP	270	5%	1/10W	
R038	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R039	1-216-019-00	METAL CHIP	56	5%	1/10W	
R040	1-216-015-00	METAL CHIP	39	5%	1/10W	
R041	1-216-304-11	METAL CHIP	3.3	5%	1/10W	
R042	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R046	1-216-295-00	METAL CHIP	0	5%	1/10W	
R049	1-216-296-00	METAL CHIP	0	5%	1/8W	
R050	1-216-295-00	METAL CHIP	0	5%	1/10W	
R051	1-216-296-00	METAL CHIP	0	5%	1/8W	
R053	1-216-296-00	METAL CHIP	0	5%	1/8W	
R055	1-216-295-00	METAL CHIP	0	5%	1/10W	
R056	1-216-295-00	METAL CHIP	0	5%	1/10W	

When indicating parts by reference number, please include the board name.

Ref No.	Part No.	Description	Remark
R060	1-216-295-00	METAL CHIP 0 5% 1/10W	
R061	1-216-295-00	METAL CHIP 0 5% 1/10W	
R063	1-216-295-00	METAL CHIP 0 5% 1/10W	
R065	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R066	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R070	1-216-103-00	METAL CHIP 180K 5% 1/10W	
R071	1-216-117-00	METAL CHIP 680K 5% 1/10W	
R072	1-216-113-00	METAL CHIP 470K 5% 1/10W	

VARIABLE RESISTOR

Ref No.	Part No.	Description	Remark
RV001	1-226-703-00	RES, ADJ, METAL GLAZE 10K	
RV002	1-230-521-11	RES, ADJ, METAL GLAZE 2.2K	
RV003	1-230-522-11	RES, ADJ, METAL GLAZE 4.7K	
RV004	1-226-774-00	RES, ADJ, METAL GLAZE 47K	
RV005	1-228-762-00	RES, ADJ, METAL GLAZE 1M	
RV006	1-230-041-00	RES, ADJ, METAL GLAZE 2.2M	

TRANSFORMER

Ref No.	Part No.	Description	Remark
T001 ⚠	1-439-342-21	TRANSFORMER ASSY, FLYBACK	

****

MISCELLANEOUS
****

Ref No.	Part No.	Description	Remark
	A-7040-003-A	M-SW ASSY	
	X-3686-549-1	L-SW ASSY	
	1-535-535-11	TERMINAL, SHAFT GROUND	
	8-750-010-22	CCD IMAGER BLOCK (IU018-K1AA)	
	8-810-510-90	MICROPHONE, BUILT-IN (C-2008 SET)	
C902	1-161-073-11	CAP, CERAMIC 0.033MF X	
DR901 ⚠	1-464-376-21	CONVERTER, DC-DC	
DR902 ⚠	1-464-377-21	CONVERTER, DC-DC (CAMERA)	
M901	A-7040-009-A	MOTOR ASSY, L (LOADING)	
M902	8-838-077-01	MOTOR, DC (BHF-2800B) (CAPSTAN)	
M903	8-835-110-01	MOTOR, DC (DNR-5301A) (CONTROL)	
M906	8-835-127-01	F MOTOR (DNR-6300D) (FOCUS)	
PM901 ⚠	1-454-377-11	SOLENOID, PLUNGER	
S901	1-553-226-00	SWITCH, LEAF (CASSETTE LOCK)	
S902	1-554-942-11	SWITCH, PUSH (RECOG)	
S904	1-554-944-11	SWITCH, PUSH (ZOOM)	
CNP772	1-556-824-31	CORD, CONNECTION	
L901 ⚠	1-451-251-21	DEFLECTION YOKE (MONOCHROME)	
V901 ⚠	1-546-051-11	CATHODE RAY TUBE, B/W (CIM30P4)	

****

Ref.No. Part No. Description Remark

ACCESSORIES AND PACKING MATERIALS
****

Part No.	Description	Remark
3-686-846-02	BELT, SHOULDER	
3-688-931-01	FOOT, RUBBER	
*3-696-031-01	CUSHION (UPPER)	
*3-696-032-01	CUSHION (LOWER)	
*3-696-041-01	INDIVIDUAL CARTON	
3-760-728-21	MANUAL, INSTRUCTION	
3-795-581-21	INSTRUCTION	

****

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part numer specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

SECTION 7
ADJUSTMENT

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1. CAMERA SECTION ADJUSTMENT

1-1. LIST OF SERVICING JIGS

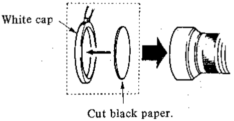
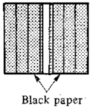
Ref No.	Name	Part Code	Use
J-1	Filter (W14)	J-6080-830-A	R Gain, B Gain Adjustment
	Filter (C22)	J-6080-829-A	R Gain, B Gain Adjustment
	Filter (For fine weather)	J-6080-058-A	MR2, MB2 Adjustment
J-2	ND Filter 0.4	J-6080-806-A	IRIS Adjustment
	ND Filter 0.1	J-6080-807-A	LX Adjustment, IRIS Adjustment
	ND Filter 1.0	J-6080-808-A	LX Adjustment, MAX Gain Adjustment
	ND Filter 0.9	J-6080-833-A	MAX Gain Adjustment
J-3	Pattern box PTB-100	J-6020-490-A	
J-4	Pattern box color chart	J-6020-250-A	
J-5	Camera block fixing jig	J-6080-842-A	
J-6	Extension cord A (8p)	J-6080-819-A	
	Extension cord B (9p)	J-6080-821-A	
Make the following jigs by yourself. (1) Black cap 			G Pedestal Adjustment (1), (2) R. B Pedestal Adjustment MPX Adjustment, Carrier Balance Adjustment Setup Adjustment
(2) High brightness pattern  Cover with black paper except 1/2 of the white width of the J-4 color bar chart. Then photograph with a standard picture frame.			White Clip Adjustment (2)

Fig. 1-1

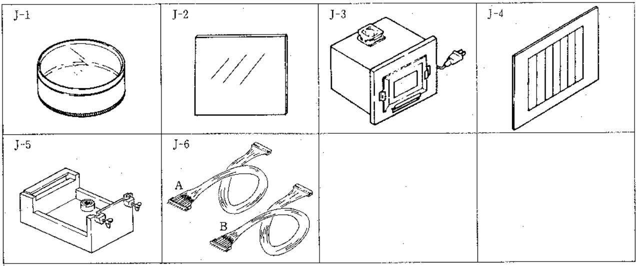


Fig. 1-2

1-2. PREPARATION

See **2. DISASSEMBLY** to remove cabinets and boards.

1) Set the white balance switch to ☼ (indoor) when not specified.
2) Set the focus switch to auto when not specified.
3) Change the entire monitor screen to white for the all-white pattern. (Remove the color bar chart from the pattern box and rotate the zoom ring fully to the TELE side.

1-3. SETUP AND CONNECTION DIAGRAM

1) Attach extension cord (9P) to CN715 (white) of ZM-3 board.
2) Attach extension cord (8P) to CN705 (red) of ME-1 board.
3) Set to fixed jig the A part of camera block section. (Fig. 1-3 a)
4) After setting the fixed jig of the camera block section, tighten with butterfly nut. (Fig. 1-3 b)
5) Set up the camera block and pattern box as shown in Fig. 1-4.
6) Protect and secure with insulating tape, etc. the leading through section of the RR-10 board.

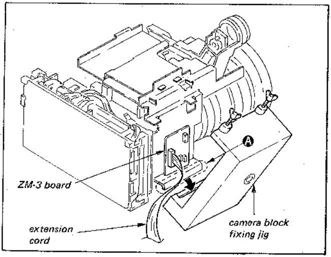

Ⓐ
ZM-3 board
extension cord
camera block fixing jig

Fig. 1-3(a)

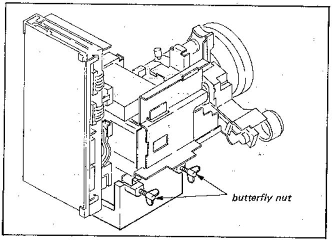

butterfly nut

Fig. 1-3(b)

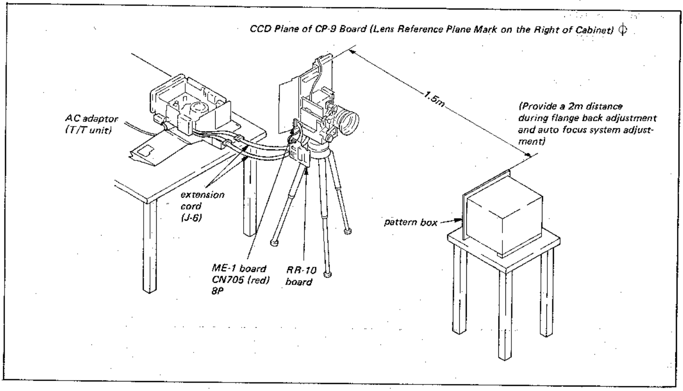

CCD Plane of CP-9 Board (Lens Reference Plane Mark on the Right of Cabinet) ⏀
1.5m
(Provide a 2m distance during flange back adjustment and auto focus system adjustment)
AC adaptor (T/T unit)
extension cord (J-6)
pattern box
ME-1 board CN705 (red) 8P
RR-10 board

Fig. 1-4

3) Use a pan head as shown in Fig. 1-5 when setting up the camera block on a desk.

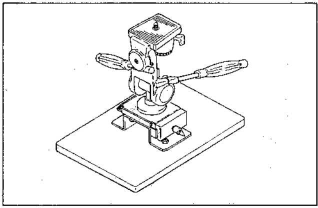
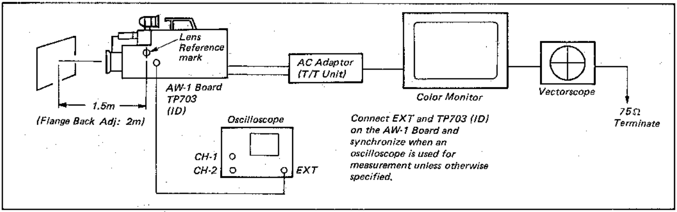


Fig. 1-5

4) Connection Diagram


Lens
Reference
mark
1.5m
(Flange Back Adj: 2m)
AW-1 Board
TP703
(ID)
AC Adaptor
(T/T Unit)
Color Monitor
Vectorscope
75Ω
Terminate
Oscilloscope
CH-1
CH-2
EXT

Connect EXT and TP703 (ID) on the AW-1 Board and synchronize when an oscilloscope is used for measurement unless otherwise specified.

Fig. 1-6

1-4. PRECAUTIONS

1) Adjust the picture frame as shown in Fig. 1-7 when using a color bar chart for adjustment. (Standard picture frame)
2) See **2. DISASSEMBLY** to remove cabinets and boards.

STANDARD PICTURE FRAME

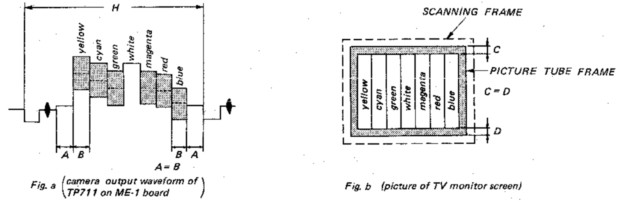

H
yellow
cyan
green
white
magenta
red
blue
A
B
B
A
A = B
SCANNING FRAME
C
PICTURE TUBE FRAME
C = D
D
yellow
cyan
green
white
magenta
red
blue

Fig. a (*camera output waveform of TP711 on ME-1 board*)

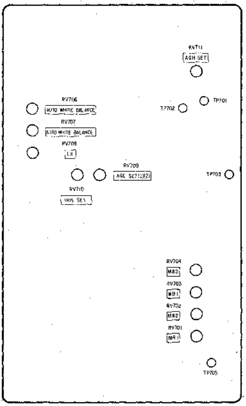
Fig. b (*picture of TV monitor screen*)

Adjust the zooming of camera and the tripod so that the output waveform of Fig. a and the picture of Fig. b can be obtain.

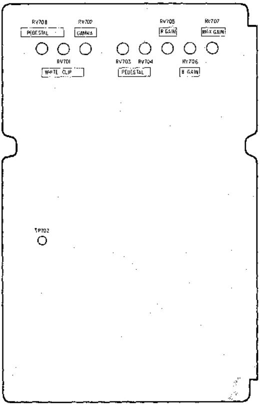
Fig. 1-7

1-5. RV AND TP LOCATION

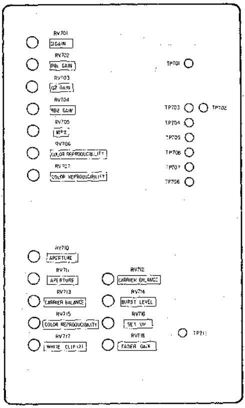
AW-1 BOARD (Component Side)


RV711
AGH SET
RV706
AUTO WHITE BALANCE
RV707
AUTO WHITE BALANCE
RV708
LX
TP702
TP701
RV709
AGC SET(1)(2)
TP703
RV710
IRIS SET
RV704
MB2
RV703
MB1
RV702
MR2
RV701
MR1
TP705

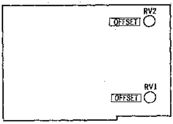
CP-9 BOARD (Component Side)


RV708
PEDESTAL
RV702
GAMMA
RV705
R GAIN
RV707
MAX GAIN
RV701
WHITE CLIP
RV703
RV704
PEDESTAL
RV706
B GAIN
TP702

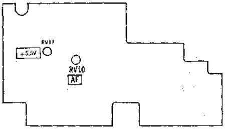
ME-1 BOARD (Component Side)


RV701
SIGAIN
RV702
RBL GAIN
RV703
G2 GAIN
RV704
RB2 GAIN
RV705
MPX
RV706
COLOR REPRODUCIBILITY
RV707
COLOR REPRODUCIBILITY
TP701
TP703
TP702
TP704
TP705
TP708
TP707
TP706
RV710
APERTURE
RV711
APERTURE
RV712
CARRIER BALANCE
RV713
CARRIER BALANCE
RV714
BURST LEVEL
RV715
COLOR REPRODUCIBILITY
RV716
SET UP
TP711
RV717
WHITE CLIP(2)
RV718
FADER GAIN

PA-7 BOARD (Solder Side)


RV2
OFFSET
RV1
OFFSET

AZ-2 BOARD (Solder Side)


RV11
+5.5V
RV10
AF

1-6. FLANGE BACK ADJUSTMENT

Equipment: Siemens star
Allen wrenches (1.5mm and 3mm)
⊖ Screwdriver

Adjustment Method:

1) Photograph a Siemens star at a distance of 2m from the lens and align the centers of the monitor screen and of Siemens star.
2) Check that the lens zoom lever can be rotated fully to WIDE and TELE and rotate fully to the WIDE side. (Also check that the monitor screen is zooming.)
3) Set the lens focus ring index to the center, "2".

1.5 2 3

4) Loosen the hexagon socket set screw using an Allen wrench.
5) Turn the adjusting screw using the ⊖ screwdriver. (See Fig. 1-8.)

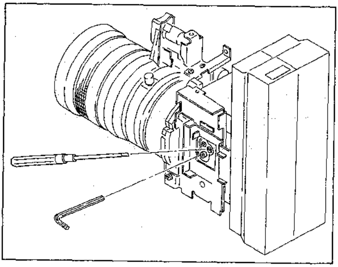


Fig. 1-8

6) Adjust by rotating the camera flange back adjusting screw two or three times right and left until a wedge in the center of the Siemens star becomes clearest while watching the monitor screen.

Note: Do not over-rotate the adjusting screw in one direction only.

7) Securely hold the flange back adjusting pin and tighten the hexagon socket set screw.
8) Set the zoom lever fully to TELE and rotate the focus ring. The position in which the wedge becomes most clear shall be in the range of the numeric "2".

1.5 2 3 (m)

9) Set the zoom lever to WIDE and rotate the focus ring. The position in which the wedge becomes most clear shall be in the following range.

1.5 2 3 (m)

10) Securely hold the flange back adjusting pin not to rotate, tighten the hexagon socket set screw, then paint lock paint on the screw head.

1-7. IRIS ADJUSTMENT

Equipment: Oscilloscope
CP-9 Board TP701

Subject: Color bar chart (standard picture frame: See Fig. 1-7 on page 186.)

Adjustment Method:

1) Rotate RV710 on the AW-1 Board and adjust the signal level to 155 ±5mVp-p. (When adjusting, adjust from high to low level.)
2) Cover an ND filter 0.5 in front of the lens.
3) Check that the signal level becomes 155 ±10mV when zoomed in case the ND filter 0.5 in front of the lens is removed. (See Fig. 1-9.)
4) Repeat Steps 1) to 3) until adjustment is made, if the result is not satisfactory.

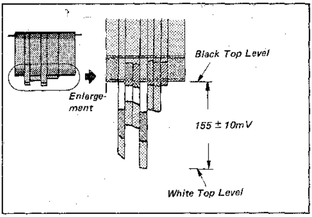


Fig. 1-9

Note: Backlight correction (iris) check up
1) Check that the signal level is 75 ±30mV when the IRIS selector switch is set to HIGH LIGHT.
2) Also check that the signal level is 210 ±40mV when set to BACK LIGHT.

1-8. AGC SETTING ADJUSTMENT

Equipment: Oscilloscope
AW-1 Board TP701

Subject: Color bar chart (standard picture frame)

Adjustment Method:

Rotate RV709 on the AW-1 Board and adjust the signal level to 200 ±5mVp-p. (See Fig. 1-10.)

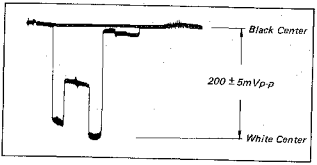


Fig. 1-10

1-9. AUTO WHITE BALANCE ADJUSTMENT (1)

Equipment: Oscilloscope
AW-1 Board CH1 TP701
CH2 TP702
MODE – ADD, POLARITY – INV

Subject: All white pattern

Adjustment Method:

1) Set the white balance switch to AUTO (⊡)
2) Rotate RV706 and RV707 on the AW-1 Board and adjust the waveform to be linear. (See Fig. 1-11.)

Note: Press the auto white balance switch, check and adjust when rotating RV706 and RV707.

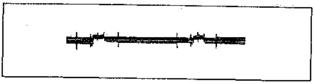


Fig. 1-11

1-10. G PEDESTAL ADJUSTMENT

Equipment: Oscilloscope
ME-1 Board TP701

Subject: All black (Cover a black cap on the lens.)

Adjustment Method:

1) Rotate RV701 and RV702 on the CP-9 Board counterclockwise and preset the output level to maximum.
2) Rotate RV708 on the CP-9 Board and temporarily adjust the pedestal level to 40 ±5mV. (See Fig. 1-12.)

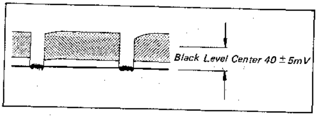


Fig. 1-12

1-11. GAMMA ADJUSTMENT

Equipment: Oscilloscope
ME-1 Board TP701

Subject: Color bar chart (standard picture frame)

Adjustment Method:

Rotate RV702, which is preset in 1-10 G Pedestal Adjustment (1), on the CP-9 Board and adjust the signal level to 380 ±5mVp-p. (See Fig. 1-13.)

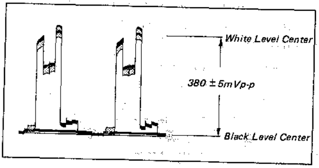


Fig. 1-13

1-12. WHITE CLIP ADJUSTMENT (1)

Equipment: Oscilloscope
ME-1 Board TP701

Subject: Color bar chart (standard picture frame)

Adjustment Method:

Rotate RV701, which is preset in 1-10 G Pedestal Adjustment (1), on the CP-9 Board and adjust the signal level to 360 ±5mVp-p. (See Fig. 1-14.)

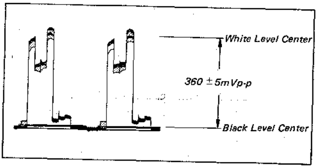


Fig. 1-14

1-13. G PEDESTAL ADJUSTMENT (2)

Equipment: Oscilloscope
ME-1 Board TP701

Subject: All black (Cover a black cap on the lens.)

Adjustment Method:

Rotate RV708 on the CP-9 Board and adjust the pedestal level to 25 ±5mV. (See Fig. 1-15.)

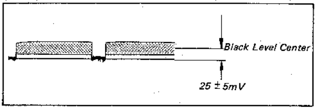


Fig. 1-15

1-14. R AND B PEDESTAL ADJUSTMENT

Equipment: Oscilloscope
ME-1 Board CH1 TP701
CH2 TP702
MODE – ADD, POLARITY – INV

Subject: All black (Cover a black cap on the lens.)

Adjustment Method:

Rotate RV703 and RV704 on the CP-9 Board and adjust the waveform to be linear. (See Fig. 1-16.)

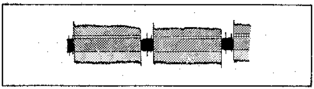


Fig. 1-16

1-15. MPX ADJUSTMENT
(USE A VECTORSCOPE)

Equipment: Vectorscope

Subject: All black (Cover a black cap on the lens.)

Adjustment Method:

Rotate RV705 on the ME-1 Board and adjust until the black spots on the vectorscope become one dot. (See Fig. 1-17.)

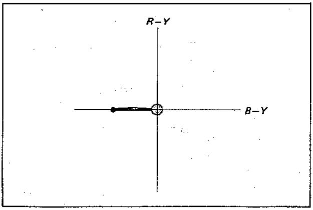


Fig. 1-17

(USE A OSCILLOSCOPE)

Equipment: Oscilloscope
CH1 (X): Q710 emitter (B-Y)
CH2 (Y): TP709 (R-Y)
Mode: X-Y

Subject: All black (Cover a black cap on the lens.)

Adjustment Method:

Rotate RV705 (MPX) on the ME-1 Board and adjust black spots to merge into one spot.

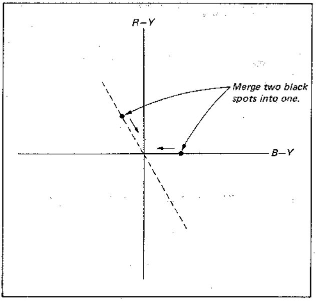


Fig. 1-18

1-16. CARRIER BALANCE ADJUSTMENT
(USE A VECTORSCOPE)

Equipment: Vectorscope

Subject: All black (Cover a black cap on the lens.)

Adjustment Method:

1) Set the GAIN knob of the vectorscope to "MAX".
2) Rotate RV712 and RV713 on the ME-1 Board and adjust the black spot to the origin. (See Fig. 1-19.)

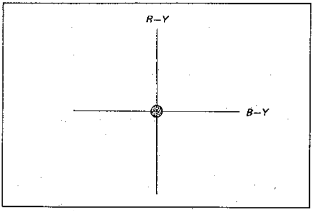


Fig. 1-19

3) Set the GAIN knob of the vectorscope to "CAL". Check that the black spot is located less than the origin ±1mm this time. (See Fig. 1-20.)

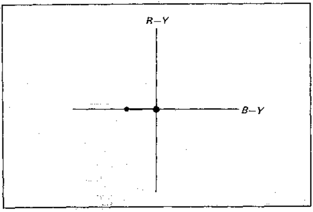


Fig. 1-20

(USE A OSCILLOSCOPE)

Equipment: Oscilloscope
ME-1 Board TP711 (V. O)

Subject: Color bar chart (standard picture frame)

Adjustment Method:

Rotate RV712 (CB9) and RV713 (CB) on the ME-1 Board to minimize the amplitude of the black part.

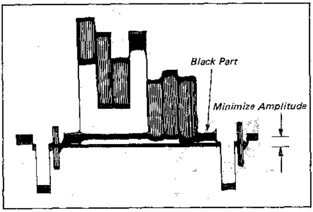
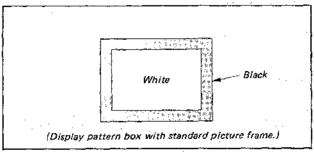


Fig. 1-21

1-17. G_1 AND G_2 GAIN ADJUSTMENT

Equipment: Oscilloscope
ME-1 Board (a) CH1 TP703(G_0)
CH2 TP704(G_1)
(b) CH1 TP703(G_0)
CH2 TP705(G_2)
MODE − ADD
POLARITY − INV

Subject: White pattern (See Fig. 1-22.)



(Display pattern box with standard picture frame.)

Fig. 1-22

Adjustment Method:

1) Set the oscilloscope probe to (a) and rotate RV701 on the ME-1 Board until the waveform becomes linear. (See Fig. 1-23.)
2) Set the oscilloscope probe to (b) and rotate RV703 on the ME-1 Board until the waveform becomes linear. (See Fig. 1-23.)

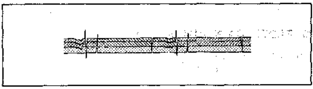


Fig. 1-23

1-18. RB_1 AND RB_2 GAIN ADJUSTMENT

Equipment: Oscilloscope
ME-1 Board (a) CH1 TP706(RB_0)
CH2 TP707(RB_1)
(b) CH1 TP706(RB_0)
CH2 TP708(RB_2)
MODE − ADD
POLARITY − INV

Subject: White pattern (See Fig. 1-22.)

Adjustment Method:

1) Set the oscilloscope probe to (a) and rotate RV702 on the ME-1 Board until the waveform becomes linear. (See Fig. 1-23.)
2) Set the oscilloscope probe to (b) and rotate RV704 on the ME-1 Board until the waveform becomes linear. (See Fig. 1-23.)

1-19. SETTING ADJUSTMENT

Equipment: Oscilloscope
ME-1 Board TP711

Subject: All black (Cover a black cap on the lens.)

Adjustment Method:

Rotate RV716 on the ME-1 Board and adjust the signal level to 25 ±5mV. (See Fig. 1-24.)

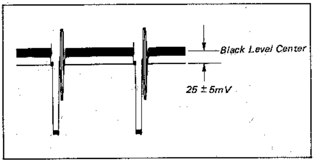

Black Level Center
25 ± 5mV

Fig. 1-24

1-20. FADER GAIN ADJUSTMENT

Equipment: Oscilloscope
ME-1 Board TP711

Subject: Color bar chart (Standard picture frame)

Adjustment Method:

1) Set the white balance switch to "AUTO" (⊡).
2) Preset RV717 on the ME-1 Board to maximize the white level.
3) Rotate RV718 on the ME-1 Board and adjust the signal level to 335^{+0}_{-10}mV. (See Fig. 1-25.)

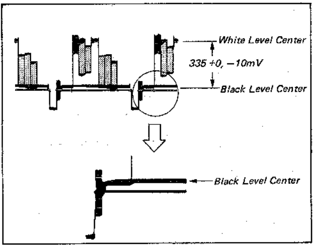

White Level Center
335 +0, −10mV
Black Level Center
Black Level Center

Fig. 1-25

1-21. APERTURE ADJUSTMENT

Equipment: Oscilloscope
ME-1 Board TP711

Subject: Color bar chart (Standard picture frame)

Adjustment Method:

1) Set the white balance switch to "AUTO" (⊡).
2) Preset RV710 and RV711 on the ME-1 Board as shown in Fig. 1-26.

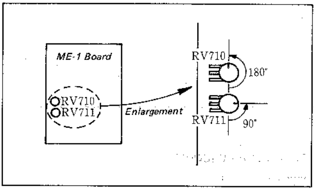

ME-1 Board
RV710
RV711
Enlargement
RV710
180°
RV711
90°

Fig. 1-26

3) Focus correctly and move the camera right and left slightly. Fix the camera when the aperture becomes maximum.
4) Rotate RV711 on the ME-1 Board and adjust the aperture level between white and magenta to 90 ±10mV. (See Fig. 1-27.)
5) Rotate RV710 on the ME-1 Board and adjust the aperture level between white and magenta to 40 ±10mV. (See Fig. 1-27.)

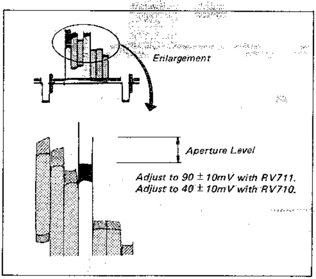

Enlargement
Aperture Level
Adjust to 90 ± 10mV with RV711.
Adjust to 40 ± 10mV with RV710.

Fig. 1-27

1-22. WHITE CLIP ADJUSTMENT (2)

Equipment: Oscilloscope
ME-1 Board TP711

Subject: High brightness pattern

Adjustment Method:

1) Rotate RV717 on the ME-1 Board and adjust the signal level to 420 ±10mV. (See Fig. 1-28.)

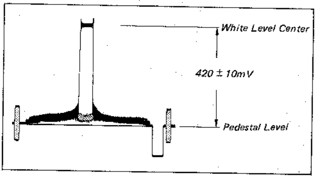


Fig. 1-28

2) Repeat adjustment and checking until the setting up, fader gain, and white clip adjustments meet the required levels.

1-23. AUTO WHITE BALANCE ADJUSTMENT (2) (USE A VECTORSCOPE)

Equipment: Vectorscope

Subject: All white pattern

Adjustment Method:

1) Set the white balance switch to "AUTO" (☐).
2) Set the vectorscope GAIN knob to "MAX".
3) Rotate RV706 and RV707 on the AW-1 Board and adjust the center of the white spot on the vectorscope to the origin. (See Fig. 1-29.)

Note: Press the white balance switch, check and adjust for when rotating RV706 and RV707.

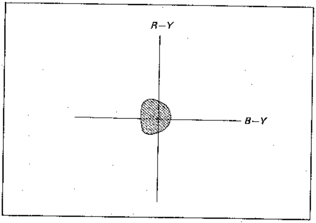


Fig. 1-29

(USE A OSCILLOSCOPE)

Equipment: Oscilloscope
CH1 (X): ME-1 Board Q710 emitter (B-Y)
CH2 (Y): ME-1 Board TP709 (R-Y)
Mode: X-Y

Subject: White pattern (See Fig. 1-22.)

Adjustment Method:

1) Set the white balance switch to "AUTO" (☐).
2) Cover a black cap on the lens, check the black spot position, then remove the black cap.
3) Rotate RV706 (B OFS) and RV707 (R OFS) on AW-1 Board to overlap the white and black spots.

Note: When RV706 and RV707 are rotated, press the white balance switch and adjust while checking the white and black spots.

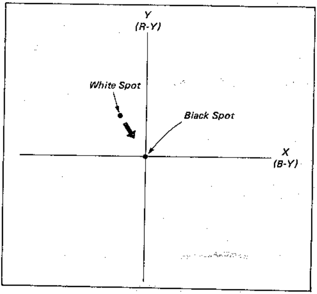


Fig. 1-30

1-24. MAX GAIN ADJUSTMENT

Equipment: Oscilloscope
ME-1 Board TP711

Subject: Color bar chart (Standard picture frame)

Adjustment Method:

1) Set the white balance switch to "AUTO" (☐) and press once.
2) Cover an ND filter 1.9 in front of the lens.
3) Adjust the waveform value to 170 ±10mV with RV707 on the CP-9 Board. (See Fig. 1-31.)

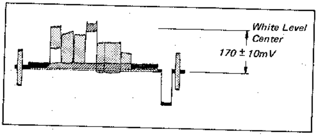


Fig. 1-31

1-25. AGC SET ADJUSTMENT (2)

Equipment: Oscilloscope
AW-1 Board TP701

Subject: Color bar chart (Standard picture frame)

Adjustment Method:

Adjust the waveform value to 200 ±5mVp-p with RV709 on the AW-1 Board. (See Fig. 1-32.)

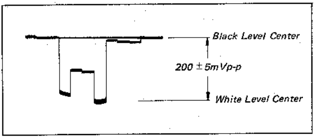


Fig. 1-32

1-26. AGH SET ADJUSTMENT

Equipment: Oscilloscope
ME-1 Board TP711

Subject: All white pattern

Adjustment Method:

1) Set the IRIS selector switch to "BACK LIGHT".
2) Rotate RV711 on the AW-1 Board to adjust the waveform to 360 ±20mV. (See Fig. 1-33.)

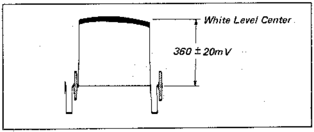


Fig. 1-33

3) Set the IRIS selector switch to "HIGH LIGHT" and check that the waveform is 110 ±30mV.

1-27. LX ADJUSTMENT

Subject: White pattern (Zoom lever position: Standard picture frame)

Adjustment Method:

1) Cover an ND filter 2.0 in front of the lens and wait 2 or 3 seconds.
2) Rotate RV708 on the AW-1 Board, light the LX lamp (EVF), thereafter extinguish it.
3) Exchange with an ND filter 2.1 and check that the LX lamp (EVF) lights in less than 3 seconds.
4) Check that the lamp extinguishes with an ND filter 2.0 and lights with an ND filter 2.1. Repeat adjusting and checking if not satisfactory.

Note: The lens sensitivity changes depending on the zoom position. Do not move the zoom ring when making an adjustment.

1-28. COLOR REPRODUCIBILITY ADJUSTMENT (USE A VECTORSCOPE)

Equipment: Vectorscope

Subject: Color bar chart (Standard picture frame)

Adjustment Method:

1) Set the white balance switch to "AUTO" ( ).
2) Rotate RV706, RV707, and RV715 on the ME-1 Board and place the six color spots inside their standard frames. (See Fig. 1-34.)

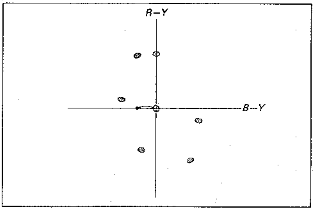


Fig. 1-34

(USE A OSCILLOSCOPE)

Equipment: Oscilloscope
ME-1 Board TP711 (V, O)
Digital voltmeter
ME-1 Board Sliding terminal of RV715

Subject: Color bar chart (standard picture frame)

Adjustment Method.

1) Set the white balance switch to "AUTO" (▣) and press once.
2) Rotate RV707 (B-Y) on ME-1 Board to minimize the blue amplitude.
3) Rotate RV706 (R-Y) on ME-1 Board to adjust the red amplitude to 244 ±5mVp-p.
4) Rotate RV707 (B-Y) to adjust the yellow amplitude to 168 ±5mVp-p.
5) Rotate RV715 (HUE) on ME-1 Board to adjust the RV715 sliding terminal voltage to 2.5V dc.
6) Check the colors reproduced on the monitor TV and make a fine adjustment of RV715 if necessary.

Note 1: The hue of the monitor TV should be adjusted correctly.

Note 2: Magenta is reproduced in a red-tinted color.

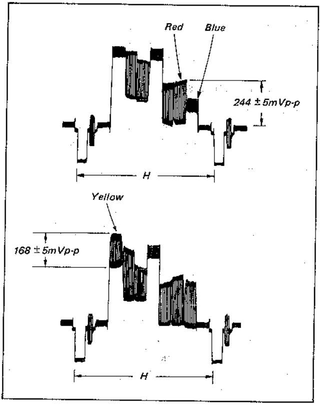


Fig. 1-35

1-29. BURST LEVEL ADJUSTMENT (USE A VECTORSCOPE)

Equipment used: A vectorscope

Subject: Color bar chart (standard picture frame)

Adjustment Method:

Adjust the burst level center to less than ±1mm of burst position on scale 75% using RV714 of the ME-1 Board.

(USE A OSCILLOSCOPE)

Equipment: Oscilloscope
ME-1 Board TP711 (V, O)

Subject: Color bar chart (Standard picture frame)

Adjustment Method:

Rotate RV714 (BG) on ME-1 Board to adjust the burst level to 140 ±5mVp-p.

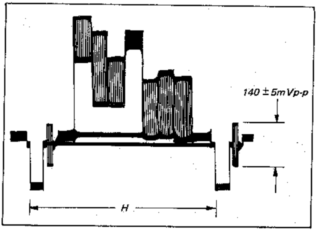


Fig. 1-36

1-30. R AND B GAIN ADJUSTMENTS (USE A VECTORSCOPE)

Equipment used: A vectorscope

Subject: All white pattern

Adjustment Method:

Note: When performing the adjustments on the steps of 3), 5), 8) and 10), set the GAIN of a vectorscope as high as possible.

1) Set the white balance switch to "AUTO" (▣).
2) Preset RV705 on the CP-9 Board to the mechanical center. (See Fig. 1-37.)

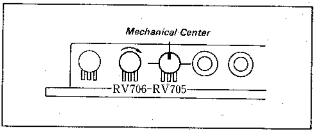


Fig. 1-37

3) Rotate RV706 on the CP-9 Board clockwise and preset so that the white spot on the vector moves to left fully.
4) Place a filter W14 in front of the lens, press the auto white balance switch, and check that the white spot is slided left from the R-Y axis. (See Fig. 1-38.)

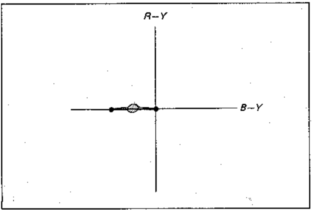


Fig. 1-38

5) Rotate RV706 counterclockwise and move the white spot to the origin.
6) Press the white balance switch.
7) Check that the white spot is less than 3ϕ from the origin and that the white balance alarm lamp inside EVF is not flashing.
   Rotate RV706 slightly counterclockwise and repeat Steps 6) and 7) if either one of these two conditions is not met.
8) Rotate RV705 clockwise and preset so that the white spot moves to lower right fully.
9) Change the filter to a C22 filter. Check that the white spot is slided under the B-Y axis when the white balance switch is pressed. (See Fig. 1-39.)

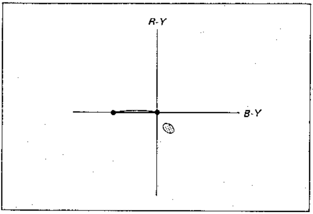


Fig. 1-39

10) Rotate RV705 counterclockwise and move the white spot closer to the origin.
11) Press the white balance switch.
12) Repeat Steps 10) and 11) and adjust so that the white spot is located less than 3ϕ from the origin and that the white balance alarm lamp inside EVF is extinguished.
13) Rotate RV705 counterclockwise further to place the white spot 4.0 ±0.5mm upper left of the origin. Then push the white balance switch and check that the white spot is located less than 3ϕ from the origin and that white balance alarm lamp inside EVF is not flashing either. (See Fig. 1-40.)

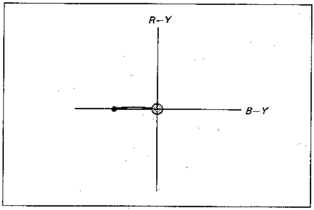


Fig. 1-40

(USE A OSCILLOSCOPE)

Equipment: Oscilloscope
CH1 (X): ME-1 Board Q710 emitter (B-Y)
CH2 (Y): ME-1 Board TP709 (R-Y)
Mode: X-Y
Filter: W14, C22

Subject: White pattern

Adjustment Method:

1) Set the white balance switch to "AUTO" ( ).
2) Preset RV705 (RG) on the CP-9 Board to the mechanical center.

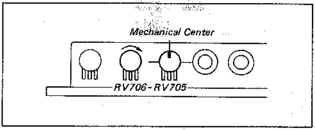


Fig. 1-41

3) Cover a black cap on the lens, check the black spot position, then remove the black cap.
4) Rotate RV706 (BG) on the CP-9 Board clockwise and preset so that the white spot slides to the left side full relative to the black spot.
5) Cover a filter W14 on the lens, press the white balance switch, then check that the white spot is slided left of the black spot.
(See Fig. 1-42 Ⓐ.)
6) Rotate RV706 counterclockwise and align the centers of the white and black spots.
(See Fig. 1-42 Ⓑ.)
7) Press the white balance switch.
8) Check that the voltage difference between the centers of the white and black spots is less than 6mV and that the white balance alarm lamp in EVF is not flashing.
(See Fig. 1-42 Ⓒ.)
9) Rotate RV706 counterclockwise slightly if either one of these two conditions is not met and repeat Steps 7) and 8).
10) Rotate RV705 (RG) clockwise and preset so that the white spot approaches immediately below the right-hand side of the black spot.
11) Change the filter to C22, press the white balance switch, then check that the white spot is slided below (lower right) of the black spot.
(See Fig. 1-42 Ⓔ.)
12) Rotate RV705 counterclockwise and overlap the centers of the white and black spots.
(See Fig. 1-42 Ⓕ.)
13) Press the white balance switch.
14) Repeat Steps 12) and 13) to adjust so that the voltage difference between the centers of the white and black spots is less than 4mV and that the white balance alarm lamp inside EVF is not flashing.
(See Fig. 1-42 Ⓖ.)
15) Rotate RV705 counterclockwise additionally and place the white spot center 10 ±2mV above the black spot center.
(See Fig. 1-42 Ⓗ.)
16) Press the white balance switch and check that the white spot center is overlapping the black spot center and that the white balance alarm lamp inside EVF is not flashing.
(See Fig. 1-42 Ⓘ.)

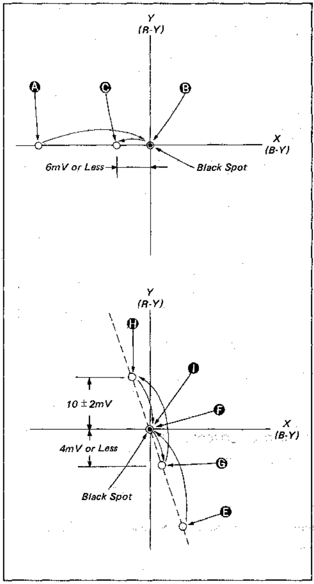


Fig. 1-42

1-31. MR_1 AND MB_1 ADJUSTMENT (USE A VECTORSCOPE)

Equipment: Vectorscope

Subject: Color bar chart (Standard picture frame)

Adjustment Method:

1) Set the white balance switch to (☼).
2) Set the vectorscope GAIN knob to "MAX".
3) Rotate RV701 and RV703 on the AW-1 Board and adjust the white spot on the vectorscope to be placed on the origin. (See Fig. 1-43.)
4) Set the vectorscope GAIN knob to "CAL". Check that the white spot is placed within the range of the origin ±0.5mm.

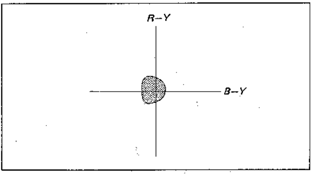


Fig. 1-43

(USE A OSCILLOSCOPE)

Equipment: Oscilloscope
CH1 (X): ME-1 Board Q710 emitter (B-Y)
CH2 (Y): ME-1 Board TP709 (R-Y)
Mode: X-Y

Subject: Color bar chart (Standard picture frame)

Adjustment Method:

1) Set the white balance switch to the M1 (☼) position.
2) Cover a black cap on the lens, check the black spot position, then remove the black cap.
3) Rotate RV701 (MR_1) and RV703 (MB_1) on the AW-1 Board to overlap the centers of the white and black spots.

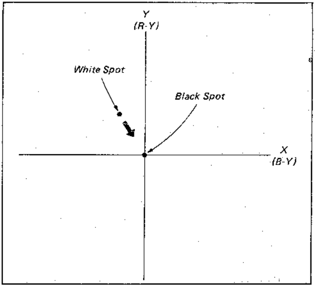


Fig. 1-44

1-32. MR_2 AND MB_2 ADJUSTMENT (USE A VECTORSCOPE)

Equipment: Vectorscope

Subject: Color bar chart (Standard picture frame)

Adjustment Method:

1) Set the white balance switch to (☼).
2) Cover a filter for fine weather in front of the lens.
3) Set the vectorscope GAIN knob to "MAX".
4) Rotate RV702 and RV704 on the AW-1 Board to align the white spot on the vectorscope to a position approximately 2mm below the origin on the R-Y axis. (See Fig. 1-45.)

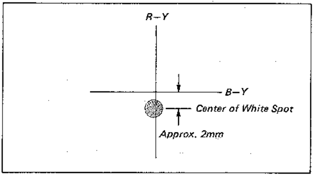


Fig. 1-45

(USE A OSCILLOSCOPE)

Equipment: Oscilloscope
CH1 (X): ME-1 Board Q710 emitter (B-Y)
CH2 (Y): ME-1 Board TP709 (R-Y)
Mode: X-Y
Filter: For fine weather (5800°K)

Subject: Color bar chart (Standard picture frame)

Adjustment Method:

1) Set the white balance switch to the M2 (☼) position.
2) Mount a filter for fine weather on the lens.
3) Cover a black cap on the lens, check the black spot position, then remove the black cap.
4) Rotate RV702 (MR_2) and RV704 (MB_2) on the AW-1 Board to position the white spot center directly below the black spot center (6mV).

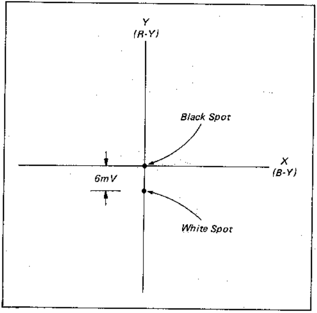


Fig. 1-46

1-33. VIDEO OUT SIGNAL CONFIRMATION

Equipment: Oscilloscope
ME-1 Board TP711

Subject: Color bar chart (Standard picture frame)

Checking Method:

1) After making all the required adjustments, check that the signal level is ≦ 580mVp-p. (See Fig. 1-47.)
2) Check and adjust the MAX gain and color reproducibility when the signal level is higher than 580mV p-p.

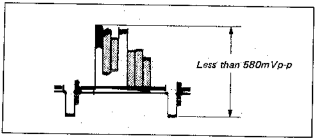


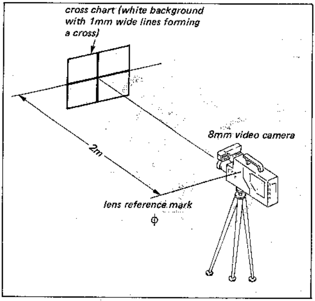
Fig. 1-47

1-34. ADJUSTMENT OF AUTOMATIC FOCUS SYSTEM

1-34-1. Measurement Distance Check

Connection Diagram

1) Set up the cross chart and the 8mm video camera as shown in the diagram below.
2) Align the heights and horizontal levels of the cross chart and 8mm video camera.



cross chart (white background with 1mm wide lines forming a cross)
8mm video camera
2m
lens reference mark
Φ

Fig. 1-48

[Checking Procedure]

1) Set the focus switch to AUTO.
2) Set the lens zoom ring on the telephoto side.
Rotate the focus ring to ∞ by hand.
3) Check that the difference between the 2m mark on the focus ring and the mark is ±1mm when the focus ring is released.
4) Set to 1.3(m) by rotating focus ring manually.
5) Confirm Item 3.

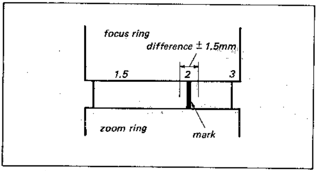

focus ring
difference ± 1.5mm
1.5
2
3
zoom ring
mark

Fig. 1-49

1-34-2. Zoom Lens Block

1. Zoom Motor Unit and Focus Motor Unit

1) When mounting the zoom motor unit and focus motor adjust the engagement of the gears so that the play of the manual zoom and focus ring is 0.5mm – 1mm on the zoom ring and focus ring respectively, and fix with screws. (Fig. 1-50)

Note: If there is not enough play, manual torque will be heavy at high and low temperatures.

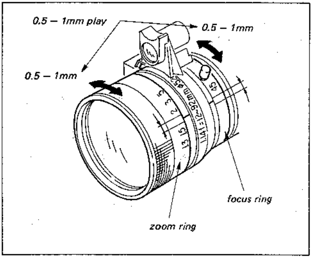

0.5 – 1mm play
0.5 – 1mm
0.5 – 1mm
focus ring
zoom ring

Fig. 1-50

2. Iris Unit

1) Check iris operation. (Fig. 1-51)
2) Adjust flange back.

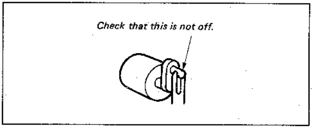

Check that this is not off.

Fig. 1-51

3. Zoom Ring Unit

[Replacement]

1) Open the AZ-2 board.
2) Remove the zoom motor unit from the lens barrel.
3) Remove the screw holding the rear lens barrel and the rear lens barrel. (Fig. 1-52)
4) Remove the screw holding the middle lens barrel and the middle lens barrel. (Fig. 1-53)
5) Remove the zoom ring unit.
6) Replace the zoom ring unit.

[Mounting Procedure]

1) Mount the zoom ring unit. (Fig. 1-54)
2) Mount the middle lens barrel on the rear lens barrel.
3) Mount the zoom motor unit and lens barrel.
4) Check manual zoom operation.
5) Be careful not to get dirt or fingerprints on the lens.
6) Be careful not to scratch the ND filter on the iris unit.
7) Adjust flange back.

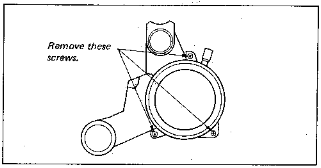

Remove these screws.

Fig. 1-52

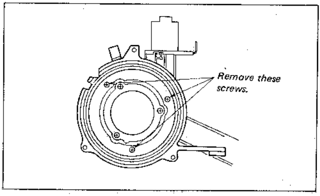

Remove these screws.

Fig. 1-53

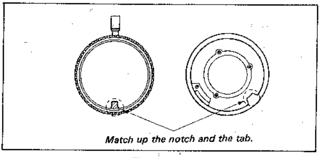

Match up the notch and the tab.

Fig. 1-54

1-34-3. AF Adjustment

1. +5.5V Adjustment (AZ-2 Board)

Required equipment: Digital voltmeter emitter of Q022.

[Adjustment Method]

Adjust to 5.5 ±0.1V dc with RV11.

2. VFC Adjustment

Required equipment: Frequency counter

[Adjustment Method]

1) Short the D001 cathode and 1.7V line to make the waveform stationary.
2) Measure the frequency of Pin ③ of IC10 and adjust with RV10 if not within the specification. (GND: Pin ④ of CN1).

Specification: 29.5 – 30.3kHz (cycle 33 $^{+1}_{-0}$ μsec)

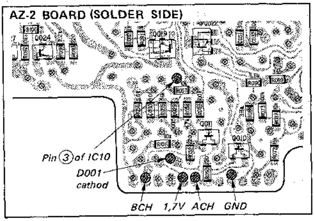

AZ-2 BOARD (SOLDER SIDE)
Pin ③ of IC10
D001 cathod
BCH
1.7V
ACH
GND

Fig. 1-55

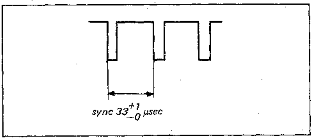

sync 33^{+1}_{-0} μsec

Fig. 1-56

3. Offset Adjustment (AZ-2, PA-7 Boards)

Required equipment:

Oscilloscope: CH1 Ach (⑤) . . . AZ-2 board
CH2 Bch (⑦) . . . AZ-2 board
(Fig. 1-55)

[Adjustment Procedure]

1) Cover so that infrared rays do not enter the light-receiving sensor. (A 25¢ piece will work.) (Fig. 1-57)
2) Connect GND to the 1.7V line (⑥). (Fig. 1-55)
3) Adjust PA-7 board RV1 (Ach) and RV2 (Bch) so that the Ach and Bch integrated waveforms are 0 (0 potential difference).

Specifications: within $^{+0.02V}_{-0.05V}$

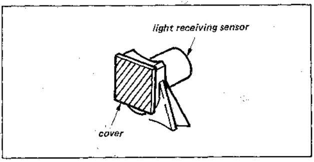

light receiving sensor
cover

Fig. 1-57

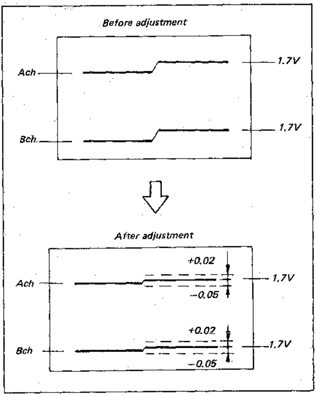

Before adjustment
Ach
1.7V
Bch
1.7V
After adjustment
+0.02
Ach
1.7V
−0.05
+0.02
Bch
1.7V
−0.05

Fig. 1-58

2. MECHANISM SECTION ADJUSTMENT (VIDEO SECTION)

2-1. PREPARATION ITEMS FOR MECHANISM SECTION CHECKING, ADJUSTMENT AND REPLACEMENT

See **2. DISASSEMBLY** to remove cabinets and boards.

2-1-1. Cassette Compartment Assembly

1. Removal

1) Remove the screw ❶ and open the HS-4 Board ❷ . (You will hear a tearing sound, but this causes no problem.)
2) Remove the screw ❸ and open the SV-13 Board ❹ .
3) Remove the screw ❺ and leaf switch (S901) ❻ .
4) Remove four screws ❼ and cassette compartment assembly ❽ . (See Fig. 2-1.)

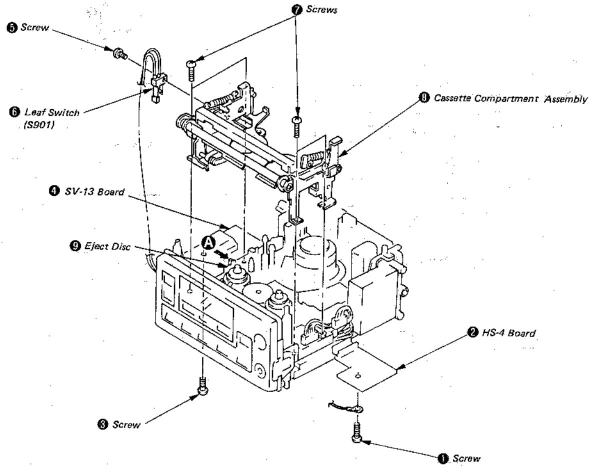

❼ Screws
❺ Screw
❽ Cassette Compartment Assembly
❻ Leaf Switch (S901)
❹ SV-13 Board
❾ Eject Disc
Ⓐ
❷ HS-4 Board
❸ Screw
❶ Screw

Fig. 2-1

2. Remounting

1) Remount the cassette compartment assembly ❽ and tighten the screw ❼ referring to Fig. 2-2. (Push the eject disc ❾ toward the arrow Ⓐ to avoid the disc hitting the cassette compartment assembly.) (See Fig. 2-2.)
2) Remount the leaf switch (S901) ❻ with a screw ❺. (See Fig. 2-1.)
3) Remount the SV-13 Board ❹ with a screw ❸. (See Fig. 2-1.)
4) Remount the HS-4 Board ❷ with a screw ❶. (See Fig. 2-1.)

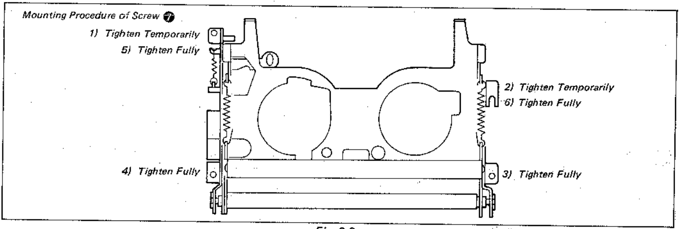

Mounting Procedure of Screw ❼
1) Tighten Temporarily
5) Tighten Fully
2) Tighten Temporarily
6) Tighten Fully
4) Tighten Fully
3) Tighten Fully

Fig. 2-2

2-1-2. Operating without Cassette Compartment Assembly and Tape

Note: Be care that the set may not operate if there is a strong light source near the set.
Turn off power, then turn on when the eject lamp flashes.

1. Loading

1) Connect the power supply ❶ and turn on power.
2) Place a tape on the pin of the RECOG SW assembly ❷.
3) Turn on the leaf switch (S901) ❸. (See Fig. 2-3.)

2. Play back

1) Take the steps required in 1.
2) Place a rubber band ❹ between the S and T reels.
3) Cover a cap ❺ on the LED assembly.
4) Press the PLAYBACK button. Push the tension regulator arm assembly ❻ toward the arrow Ⓐ when the T reel starts rotating. (The tension regulator band is released, and the S reel rotates.)
5) Press the STOP button to stop. (See Fig. 2-3.)

3. Recording

1) Take the steps required in 1.
2) Place a rubber band ❹ between the S and T reels.
3) Cover a cap ❺ on the LED assembly.
4) Press the RECORD button. Push the tension regulator arm assembly ❻ toward the arrow Ⓐ when the T reel starts rotating. (The tension regulator band is released, and the S reel rotates.)
5) Press the STOP button to stop. (See Fig. 2-3.)

4. Ejecting

1) Press the EJECT button.

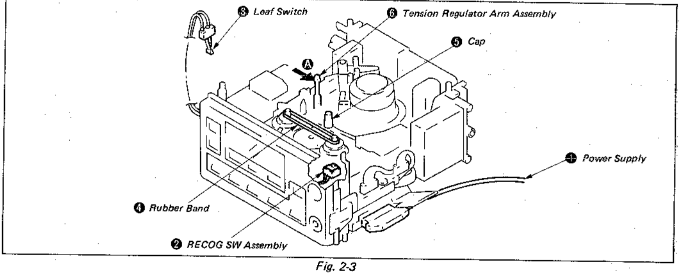

❸ Leaf Switch
❻ Tension Regulator Arm Assembly
❺ Cap
Ⓐ
❶ Power Supply
❹ Rubber Band
❷ RECOG SW Assembly

Fig. 2-3

2-1-3. Mode Selector Operation

1. Selector Parts (External View)

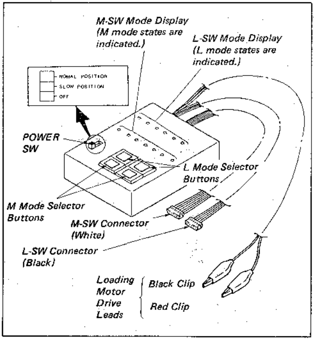

M-SW Mode Display
(M mode states are indicated.)
L-SW Mode Display
(L mode states are indicated.)
NOMAL POSITION
SLOW POSITION
OFF
POWER SW
L Mode Selector Buttons
M Mode Selector Buttons
M-SW Connector (White)
L-SW Connector (Black)
Loading Motor Drive Leads
Black Clip
Red Clip

Fig. 2-4

2. Connection

1) Plug the M-SW connector (6P connector, 6 harnesses, white) to the MS-4 Board (CN905) of the set.
2) Plug the L-SW connector (6P connector, 4 harnesses, black) to the LS-9 Board (CN904) of the set.
3) Connect each of red and black clip of the loading motor to each of red and gray loading motor drive lead wire, respectively. (See Fig. 2-4.)

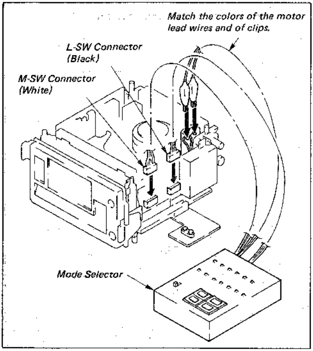

Match the colors of the motor lead wires and of clips.
L-SW Connector (Black)
M-SW Connector (White)
Mode Selector

Fig. 2-5

3. Precautions

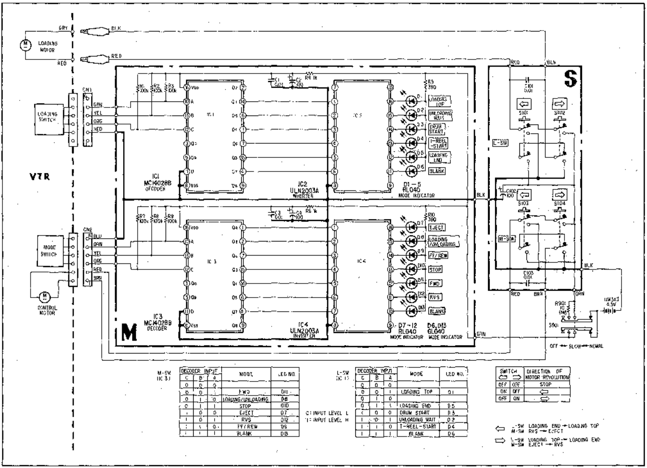
1) Make sure to set the M-SW mode to LOADING/UNLOADING when operating L-SW.
2) Make sure to set the L-SW mode to TOP or END when operating M-SW.

4. Operation

"BLANK" lights if each mode state is not set up during selection regardless of the L or M mode.

1) L Mode
   - Lighted to right sequentially from LOADING TOP to LOADING END when the righthand side button of the L mode selector buttons is kept pressing.
   - Keep pressing the selector button on the lefthand side to set up the desired mode in order to change from LOADING END to LOADING TOP.
   - The L mode operates more slowly in the slow position than in the normal position.
2) M Mode
   - Set L-SW to LOADING TOP to eject.
   - Set L-SW to LOADING END to change from FF/REW to RVS or from RVS to FF/REW.
   - Keep pressing the righthand side selector button of the M MODE to light to right sequentially from EJECT to RVS.
   - Keep pressing the selector button on the lefthand side to set up the desired mode in order to change from RVS to EJECT.

5. Mode Selector Schematic Diagram


LOADING MOTOR
GRY
BLK
RED
LOADING SWITCH
CN1
GRN
YEL
ORG
RED
VTR
MODE SWITCH
CN2
BLU
GRN
YEL
ORG
RED
BRN
CONTROL MOTOR
R1 100k
R2 100k
R3 100k
C1 0.01
C2 100
R4 1k
R5 390
IC1
IC1 MC14028B DECODER
IC2
IC2 ULN2003A INVERTER
D1
D2
D3
D4
D5
D6
LOADING TOP
UNLOADING WAIT
DRUM START
T-REEL-START
LOADING END
BLANK
D1 – 5 RL040 MODE INDICATOR
R7 100k
R8 100k
R9 100k
C3 0.01
C4 100
R6 1k
R10 390
IC3
IC3 MC14028B DECODER
IC4
IC4 ULN2003A INVERTER
D7
D8
D9
D10
D11
D12
D13
EJECT
LOADING/UNLOADING
FF/REW
STOP
FWD
RVS
BLANK
D7 – 12 RL040 MODE INDICATOR
D6, D13 GL040 MODE INDICATOR
M
S
RED
BLK
C101 0.01
S101
S102
L-SW
C102 100
S103
S104
M-SW
C103 0.01
BLK
RED
BRN
GRN
R901
S901
UM3x3 4.5V
OFF ← SLOW ← NORMAL

M-SW (IC 3)

DECODER INPUT C	B	A	MODE	LED NO.
0	0	0		
0	0	1	FWD	D11
0	1	0	LOADING/UNLOADING	D8
0	1	1	STOP	D10
1	0	0	EJECT	D7
1	0	1	RVS	D12
1	1	0	FF/REW	D9
1	1	1	BLANK	D13

0 : INPUT LEVEL L
1 : INPUT LEVEL H

L-SW (IC 1)

DECODER INPUT C	B	A	MODE	LED NO.
0	0	0		
0	0	1	LOADING TOP	D1
0	1	0		
0	1	1	LOADING END	D5
1	0	0	DRUM START	D3
1	0	1	UNLOADING WAIT	D2
1	1	0	T-REEL-START	D4
1	1	1	BLANK	D6

SWITCH ⇦	⇨	DIRECTION OF MOTOR REVOLUTION
OFF	OFF	STOP
ON	OFF	⇦
OFF	ON	⇨

⇦ L-SW LOADING END → LOADING TOP
M-SW RVS → EJECT

⇨ L-SW LOADING TOP → LOADING END
M-SW EJECT → RVS

6. Mode Selector Parts List

Ref. No.	Part No.	Description
		CAPACITOR
C1	1-108-579-00	MYLAR 0.01μF 50V
C2	1-123-333-00	ELECT 100μF 24V
C3	1-108-579-00	MYLAR 0.01μF 50V
C4	1-123-333-00	ELECT 100μF 24V
C101	1-108-579-00	MYLAR 0.01μF 50V
C103	1-108-597-00	MYLAR 0.01μF 50V
		DIODE
D1	8-179-812-31	DIODE RL040
D2	8-179-812-31	DIODE RL040
D3	8-179-812-31	DIODE RL040
D4	8-179-812-31	DIODE RL040
D5	8-179-812-31	DIODE RL040
D6	8-719-812-33	DIODE GL040
D7	8-179-812-31	DIODE RL040
D8	8-179-812-31	DIODE RL040
D9	8-179-812-31	DIODE RL040
D10	8-179-812-31	DIODE RL040
D11	8-179-812-31	DIODE RL040
D12	8-179-812-31	DIODE RL040
D13	8-719-812-33	DIODE GL040

Ref. No.	Part No.	Description
		IC
IC1	8-759-240-28	IC TC4028BP
IC2	8-759-120-03	IC μPA2003A
IC3	8-759-240-28	IC TC4028BP
IC4	8-759-120-03	IC μPA2003A
		RESISTOR
R1	1-247-179-00	CARBON 100K ¼W
R2	1-247-179-00	CARBON 100K ¼W
R3	1-247-179-00	CARBON 100K ¼W
R4	1-247-131-00	CARBON 1K ¼W
R5	1-247-121-00	CARBON 390 ¼W
R6	1-247-131-00	CARBON 1K ¼W
R7	1-247-179-00	CARBON 100K ¼W
R8	1-247-179-00	CARBON 100K ¼W
R9	1-247-179-00	CARBON 100K ¼W
R10	1-247-121-00	CARBON 390 ¼W
R901	1-214-594-00	METAL 10 1W

2-2. PERIODIC CHECKING AND MAINTENANCE ITEMS

Maintenance and periodic checking should be performed as described below to demonstrate the set functions and performance fully, as well as for the sake of the machine and tapes. Provide the following maintenance work after a repair regardless of the duration of operation by the user.

2-2-1. Cleaning Rotary Drum Assembly

1) Lightly place chamois leather (Ref. No. J-2) moisted with a cleaning solution (Ref. No. J-1) on the rotary upper drum assembly and slowly rotate the rotary upper drum assembly counterclockwise by a finger to clean.

Note: Do not rotate the drum by the motor by turning on power or by rotating clockwise by a finger.
The chances of the head chip being damaged are very high if chamois leather is moved perpendicular to the head chip. Absolutely no cleaning method other than that described above should be used.

2-2-2. Tape Guide System Cleaning

1) Set up the cassette compartment assembly in an eject state and clean the tape guide system (No. 1 to 11 guides, capstan spindle and pinch roller) with chamois leather moisted with a cleaning solution. (See Fig. 2-6.)

2-2-3. Drive System Cleaning

1) Clean the drive system (timing belt and reel table surfaces) with a cloth moisted with a cleaning solution.

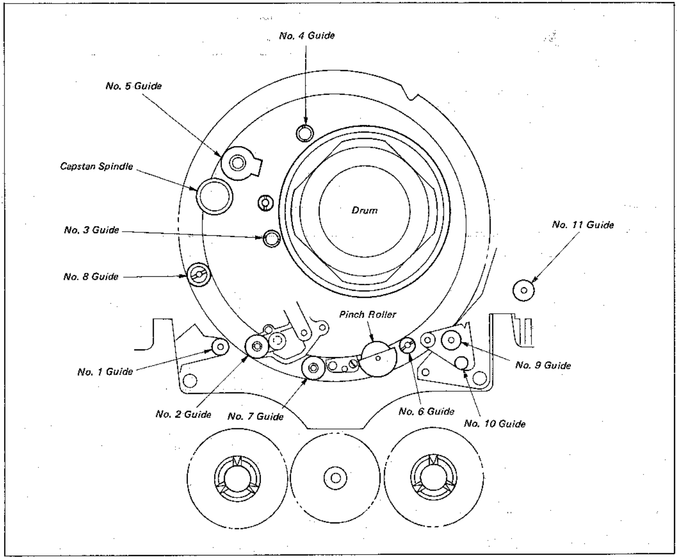

No. 4 Guide
No. 5 Guide
Capstan Spindle
Drum
No. 3 Guide
No. 11 Guide
No. 8 Guide
Pinch Roller
No. 1 Guide
No. 9 Guide
No. 2 Guide
No. 7 Guide
No. 6 Guide
No. 10 Guide

Fig. 2-6

2-2-4. Periodic Check Items

Provide the following maintenance and checking depending on the user use duration.

○Cleaning ◎Oiling ★Replacement ☆Checking

Maintenance and Check Part		Hours in Operation (h)										Remarks
		500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	
Tape Guide System	Cleaning of tape running surfaces	○	○	○	○	○	○	○	○	○	○	Avoid oil
	Cleaning and demagnetizing of rotary drum assembly	○	○	○	○	○	○	○	○	○	○	Avoid oil
Drive System	L motor belt	○	○	○	○	○	○	○	★	○	○	3-686-546-01 Replace here, or every two years
	Timing belt	○	○	○	○	○	○	○	○	○	○	3-686-646-01
	Plunger solenoid	—	—	—	○	—	—	—	○	—	—	1-454-377-11
	Capstan bearing	—	◎	—	◎	—	◎	—	◎	—	◎	Absolutely avoid oil on tape running surfaces.
	Loading motor	—	☆	—	☆	—	☆	—	☆	—	☆	A-7040-009-A
	Control motor	—	☆	—	☆	—	☆	—	☆	—	☆	8-835-110-01
Performance Checking	Abnormal sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back tension measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD RVS } Torque measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

Note: Replace parts in overhaul taking the foregoing items into consideration.

Note: SONY Oil

- Be sure to use SONY oil, always. (Various kinds of trouble may occur if the oil viscosity, etc. change.)
  SONY Oil. Parts No. 7-661-088-61
- Be sure to use SONY oil completely free from dust, etc. mixed in it when oiling the bearings. (The bearings may wear and may be seized if oil mixed with dust, etc. is used.)
- One drop of oil is approximately the amount of oil on tip of a stick 2mm in diameter as shown in the diagram. (See Fig. 2-7.)

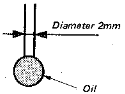


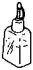
Fig. 2-7

2-2-5. Summary of Servicing Tools

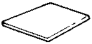
Ref. No.	Name	Part Code	Fixture No.	Use
J-1	Cleaning Fluid	Y-2031-001-0	—	
J-2	Chamois Cloth	2-034-697-00	—	
J-3	Head Demagnetizer		—	
J-4	Dental Mirror (handle) Dental Mirror (mirror)	J-6080-029-A J-6080-030-1	SL-5052	Tape Path
J-5	Alignment Tape (WR5-1N)	8-967-995-01		Tape Path
J-6	Dial Tension Gauge	J-6080-827-A		Measuring torques
J-7	Tension measuring reel	J-6080-831-A		With φ30 tape
J-8	Tension measuring reel	J-6080-832-A		With φ16 string
J-9	No. 10 gear phase matching	J-6080-823-A	GD-2047	
J-10	Rotary DRUM JIG	(Packaged with the rotary upper drum for repairs and replacement.)		
J-11	No. 6 Guide Lock JIG	J-6080-826-A		
J-12	FWD, RVS Take-up Torque Cassette	J-6080-824-A	GD-2086	
J-13	Mode Selector	J-6080-825-A		The whole
J-14	Video Head Checker	7-732-080-01	SL-5151	

Other equipment: Oscilloscope
Analog Tester (20kΩ)

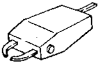
J-1



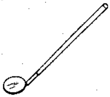
J-2



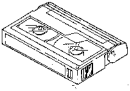
J-3



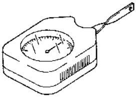
J-4



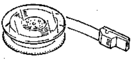
J-5



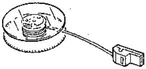
J-6



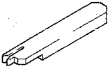
J-7



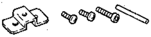
J-8



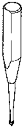
J-9



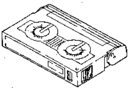
J-10 (Packaged with the rotary upper drum for repairs and replacement.)



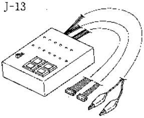
J-11



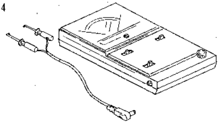
J-12



J-13



J-14



2-3. MECHANISM SECTION CHECKING, ADJUSTMENT AND REPLACEMENT

Note:
- Use a mode selector (Ref. No. J-13) to check, adjust, and replace this mechanism section.
- The modes in ☐ are set up by pressing the mode selector buttons.

2-3-1. S Reel Table Assembly

1. Removal

1) Remove the cassette compartment assembly as instructed in 2-1-1.
2) Set up the FF/REW mode.
3) Remove the screw ❶ and reel table stopper ❷ .
4) Remove the REV brake ❸ .
5) Remove the S reel table assembly ❹ . (See Fig. 2-8.)

Note: Be sure to hold the upper click part in hand when removing. (See the Note in Fig. 2-8.)

2. Remounting

1) Oil half a drop of oil on the upper spherical part of the spindle ❺ .
2) Move the S main brake assembly ❻ toward the arrow Ⓐ .
3) Remount the S reel table assembly ❹ not to touch the tension regulator band assembly ❼ .

Note: Be sure to hold the upper click part in hand when mounting. (See the Note in Fig. 2-8.)

4) Remount the REV brake ❸ .
5) Remount the reel table stopper ❷ and tighten the screw ❶ . (See Fig. 2-8.)
6) Set up the LOADING/UNLOADING mode.
7) Remount the cassette compartment assembly as instructed in 2-1-1.

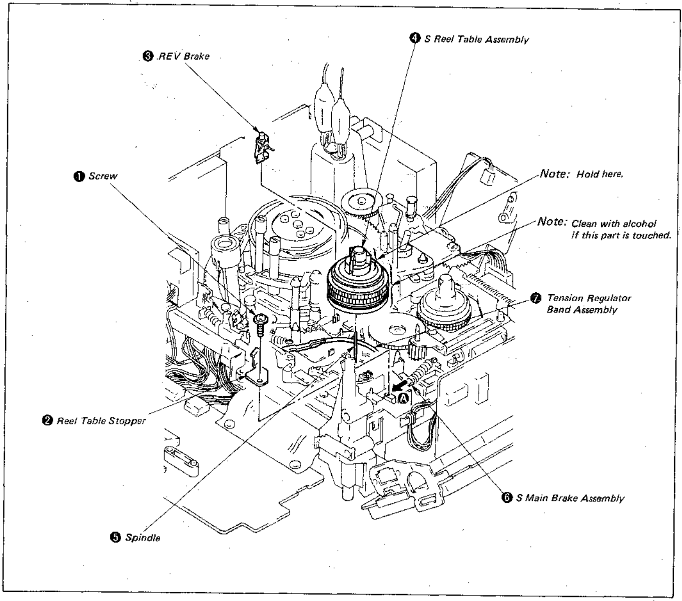

❹ S Reel Table Assembly
❸ REV Brake
❶ Screw
Note: Hold here.
Note: Clean with alcohol if this part is touched.
❼ Tension Regulator Band Assembly
Ⓐ
❷ Reel Table Stopper
❻ S Main Brake Assembly
❺ Spindle

Fig. 2-8

2-3-2. T Reel Table Assembly

1. Removal

1) Remove the cassette compartment assembly as instructed in 2-1-1.
2) Set up the UNLOADING WAIT mode.
3) Hook the spring ❷ tying the T soft brake ❶ on the click of the lock slider.
4) Remove the stopper washer ❸ and T soft brake ❶ .
5) Set up the EJECT mode.
6) Move the drive gear (B) ❹ toward the arrow Ⓐ .
7) Remove the T reel table assembly ❺ . (See Fig. 2-9.)

Note: Be sure to hold the upper click part in hand when removing. (See the Note in Fig. 2-8.)

2. Remounting

1) Oil half a drop of oil on the upper spherical part of the spindle ❻ .
2) Move the drive gear (B) ❹ toward the arrow Ⓐ . (Check that the EJECT mode is set up.)
3) Remount the T reel table assembly ❺ .
4) Remount the T soft brake ❶ and stop washer ❸ .
5) Rehook the spring ❷ on the click of the T soft brake ❶ . (See Fig. 2-9.)
6) Set up the LOADING TOP and LOADING/UNLOADING modes.
7) Remount the cassette compartment assembly as instructed in 2-1-1.

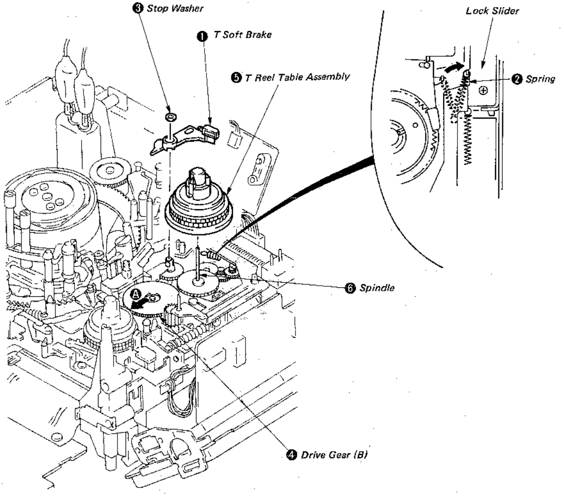


Fig. 2-9

2-3-3. Pinch Press Arm Assembly

1. Removal

1) Hook the spring ❶ on the pinch press arm assembly ❷ .
2) Remove the stop washer ❸ and pinch press arm assembly ❷ . (See Fig. 2-10.)

2. Remounting

1) Oil half a drop of oil on the spindle ❹ .
2) Remount the pinch press arm assembly ❷ and stop washer ❸ .
3) Rehook the spring ❶ on the tension regulator spring hook assembly ❺ . (See Fig. 2-10.)

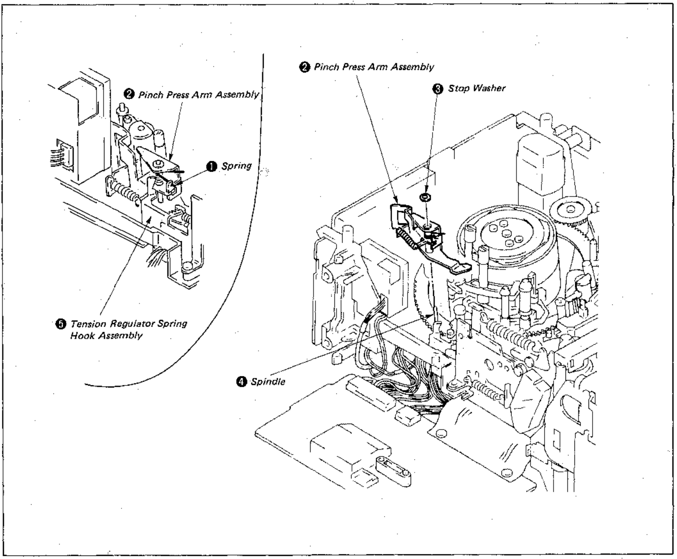

❷ Pinch Press Arm Assembly
❶ Spring
❺ Tension Regulator Spring Hook Assembly
❷ Pinch Press Arm Assembly
❸ Stop Washer
❹ Spindle

Fig. 2-10

2-3-4. Tension Regulator Arm Assembly

1. Removal

1) Remove the cassette compartment assembly as instructed in 2-1-1.
2) Change the hooking position of the spring as instructed in 1) of Removal in 1. of 2-3-3.
3) Remove the spring ❶ . (Write down the spring hooking position).
4) Remove the screw ❷ and tension regulator spring hook assembly ❸ .
5) Set up the FF/REW mode.
6) Disengage the click ❹ of the tension regulator band assembly.
7) Remove the tension regulator arm assembly ❺ . (See Fig. 2-11.)

2. Remounting

1) Oil half a drop of oil on the spindle ❻ .
2) Remount the tension regulator arm assembly ❺ inserting the tension regulator load arm assembly pin ❼ in the cam groove on the rear side of the tension regulator arm assembly ❺ .
3) Reengage the tension regulator band assembly click ❹ . (Do not touch or deform the band.)
4) Set up the LOADING/UNLOADING mode.
5) Remount the tension regulator spring hook assembly ❸ and tighten the screw ❷ .
6) Rehook the spring ❶ in the previous position and lock the screw. (See Fig. 2-11.)
7) Rehook the spring as instructed in 3) of Remounting in 2. of 2-3-3.
8) Remount the cassette compartment assembly as instructed in 2-1-1.

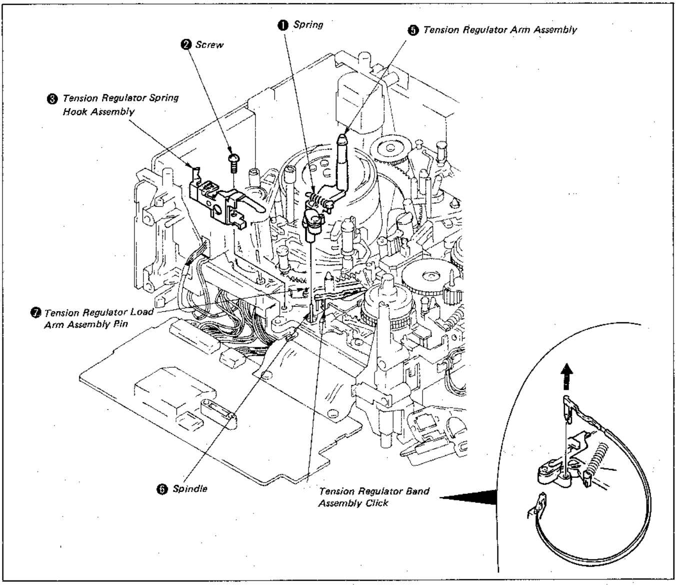

❶ Spring
❺ Tension Regulator Arm Assembly
❷ Screw
❸ Tension Regulator Spring Hook Assembly
❼ Tension Regulator Load Arm Assembly Pin
❻ Spindle
Tension Regulator Band Assembly Click

Fig. 2-11

2-3-5. Tension Regulator Band Assembly

1. Removal

1) Remove the S reel table assembly as instructed in 2-3-1.
2) Disengage the band arm assembly click ❶.
3) Disengage the click ❷ and remove the tension regulator band assembly ❸. (See Fig. 2-12.)

2. Remounting

1) Remount the tension regulator band assembly ❸. (Do not touch or deform the band.)
2) Reengage the band arm assembly click ❶. (See Fig. 2-12.)
3) Remount the S reel table assembly as instructed in 2-3-1.
4) Adjust the FWD back tension as instructed in 2-3-22.

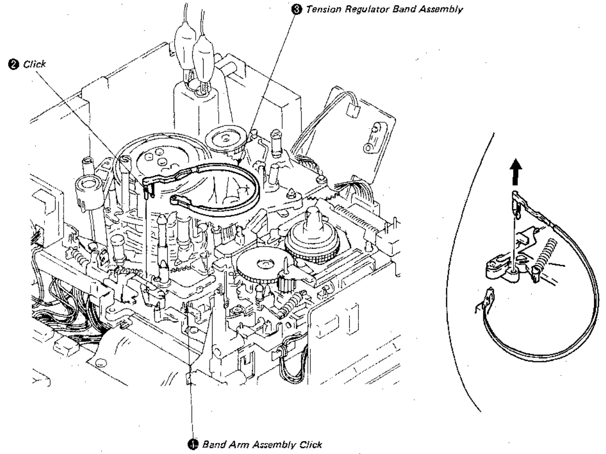

❸ Tension Regulator Band Assembly
❷ Click
❶ Band Arm Assembly Click

Fig. 2-12

2-3-6. Loading Motor Assembly

1. Removal

1) Open the MC-4 Board as instructed in section 2.
2) Remove the L motor belt ❶ .
3) Disconnect the connector ❷ CN516 (white) 2P from the RS-2 Board.
4) Remove the screw ❸ and loading motor assembly ❹ . (See Fig. 2-13.)

2. Mounting

1) Remove the loading motor shield plate from the loading motor assembly ❹ which had been mounted on the set.
2) Wind the loading motor shield plate removed in step 1) around the loading motor assembly ❹ . (See Fig. 2-14.)
3) Remount the loading motor assembly ❹ and tighten the two screws ❸ .
4) Reconnect the connector ❷ CN516 (white) 2P to the RS-2 board.
5) Remount the L motor belt ❶ .
6) Reassemble the circuit boards reversing the sequence.

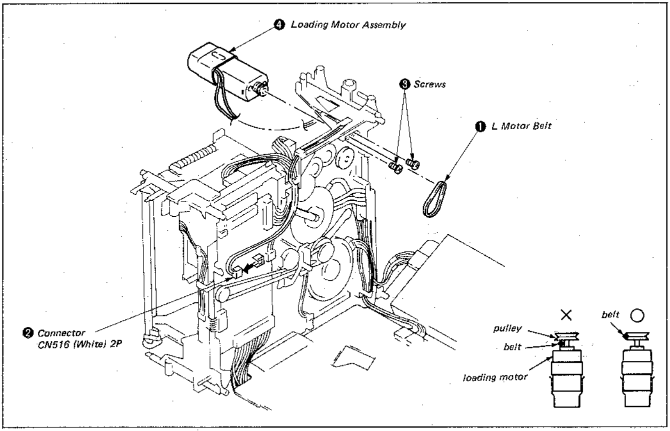
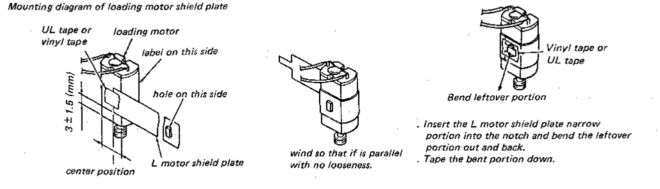

❹ Loading Motor Assembly
❸ Screws
❶ L Motor Belt
❷ Connector CN516 (White) 2P
×
belt ○
pulley
belt
loading motor

Fig. 2-13

Mounting diagram of loading motor shield plate


UL tape or vinyl tape
loading motor
label on this side
hole on this side
3 ± 1.5 (mm)
center position
L motor shield plate
wind so that it is parallel with no looseness.
Vinyl tape or UL tape
Bend leftover portion

. Insert the L motor shield plate narrow portion into the notch and bend the leftover portion out and back.
. Tape the bent portion down.

Fig. 2-14

2-3-7. Loading Ring Assembly

1. Removal

1) Operate the mode selectors to move the guide base assembly ❶ to immediately before the lock and the No. 2 guide ❷ to the position where the screw of the ring stopper ❸ immediately before the lock. (Do not move the loading ring assembly ⓫ .)
2) Remove the stop washer ❹ and disengage the No. 10 gear assembly ❺ .
3) Remove the screw ❻ , roller retainer ❼ and roller ❽ .
4) Remove the two screws ❾ , ring stopper ❸ and roller ❿ .
5) Remove the loading ring assembly ⓫ in the arrow Ⓐ direction. (See Fig. 2-15.)

Note: Care should be taken not to strike the drum when removing the loading ring assembly ⓫ .

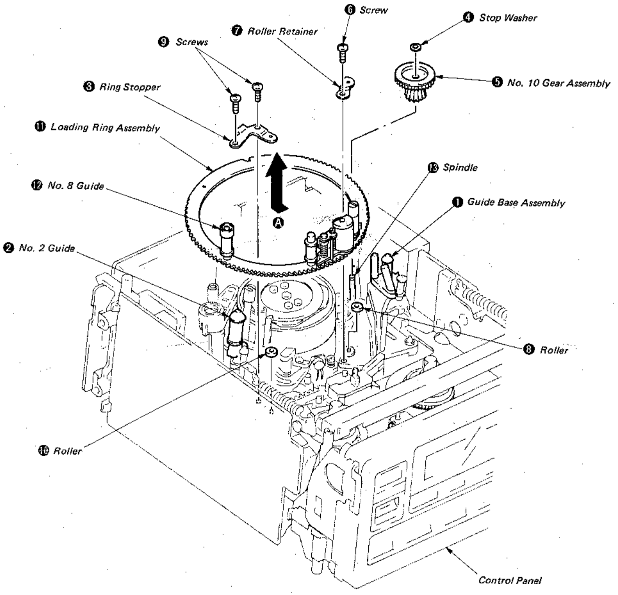

❻ Screw
❹ Stop Washer
❼ Roller Retainer
❾ Screws
❺ No. 10 Gear Assembly
❸ Ring Stopper
⓫ Loading Ring Assembly
⓭ Spindle
⓬ No. 8 Guide
❶ Guide Base Assembly
Ⓐ
❷ No. 2 Guide
❽ Roller
❿ Roller
Control Panel

Fig. 2-15

2. Remounting

1) Remount the loading ring assembly ⑪ in an unthreading condition (with the pinch roller moved to the control panel side). (Check that the loading ring assembly is in the condition of 1) of Removal.)
2) Remount the roller ⑩ and ring stopper ③ and tighten the two screws ⑨ . (The No. 8 guide ⑫ should be located near the control panel than the ring stopper ③ .)
3) Remount the roller ⑧ and roller retainer ⑦ and tighten the screw ⑥ . (Check that the loading ring assembly fits the three rollers.)
4) Oil half a drop of oil on the spindle ⑬ . (See Fig. 2-15.)
5) Check that the tooth of the drive changer is engaging the dent of the L-SW assembly and plug the No. 10 gear phase alignment jig (Ref. No. J-9) (See Fig. 2-16.)
6) Remount the No. 10 gear ⑤ and stop washer ④ pressing the No. 8 guide ⑫ to the ring stopper ③ .
7) Pull out the No. 10 gear phase alignment jig.
8) Set up the LOADING TOP mode.

Note: Be sure to adjust the tape path as instructed in 2-4 after remounting.

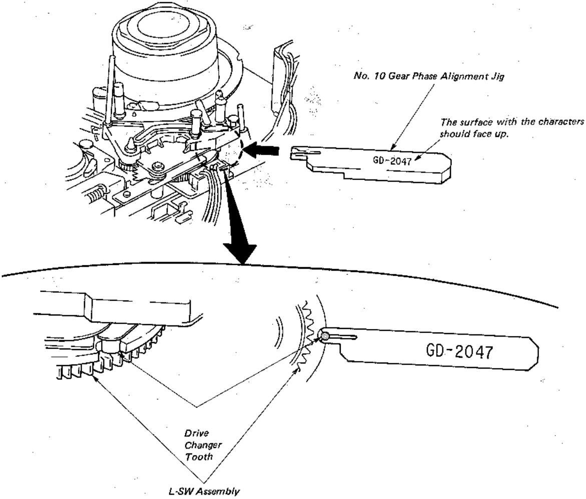

No. 10 Gear Phase Alignment Jig
The surface with the characters should face up.
GD-2047
GD-2047
Drive Changer Tooth
L-SW Assembly

Fig. 2-16

2-3-8. Pinch Roller Assembly

1. Removal

1) Remove the loading ring assembly as instructed in 2-3-7.
2) Remove the stop washer ❶ . (See Fig. 2-17.)
3) Change the hooking position of the spring ❸ on the No. 7 guide assembly ❷ . (See Fig. 2-18.)
4) Rotate the pinch roller assembly ❹ in the arrow Ⓐ direction. (See Fig. 2-19.)
5) Remove the pinch roller assembly ❹ toward the arrow Ⓑ . (See Fig. 2-20.)
6) Remove the spring ❸ . (See Fig. 2-21.)

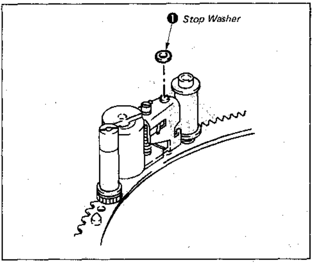

❶ Stop Washer

Fig. 2-17

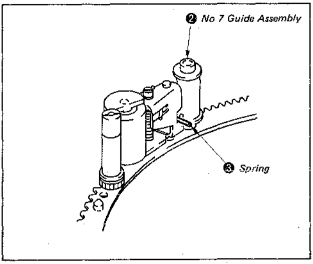

❷ No 7 Guide Assembly
❸ Spring

Fig. 2-18

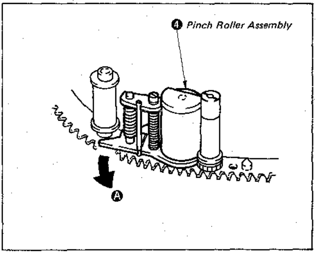

❹ Pinch Roller Assembly
Ⓐ

Fig. 2-19

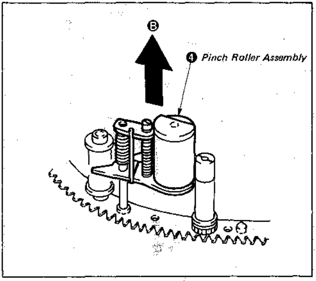

Ⓑ
❹ Pinch Roller Assembly

Fig. 2-20

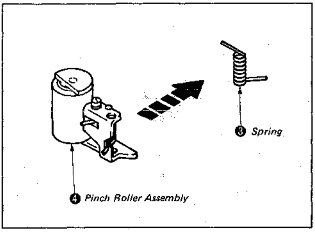

❸ Spring
❹ Pinch Roller Assembly

Fig. 2-21

2. Remounting

1) Rehook the spring ❸ . (See Fig. 2-22.)
2) Reinsert a thin object like a clip ❺ into the pinch roller assembly hole ❻ . (See Fig. 2-23 and 24.)
3) Recontact the loading ring assembly spindle ❼ with the tip of the clip ❺ and fit the pinch roller assembly ❹ . (See Fig. 2-25 and 26.)
4) Rehook the spring on the No. 7 guide assembly ❷ . Confirm that the spring is hooked to part Ⓐ at this time. (See Fig. 2-27.)
5) Remount the stop washer ❶ . (See Fig. 2-28.)
6) Remount the loading ring assembly as instructed in 2-3-7.

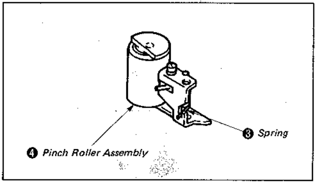

❸ Spring
❹ Pinch Roller Assembly

Fig. 2-22

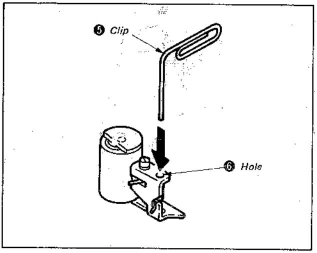

❺ Clip
❻ Hole

Fig. 2-23

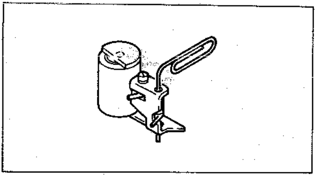


Fig. 2-24

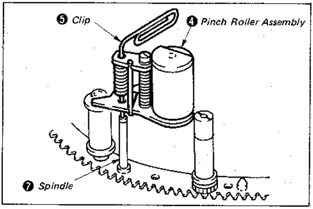

❺ Clip
❹ Pinch Roller Assembly
❼ Spindle

Fig. 2-25

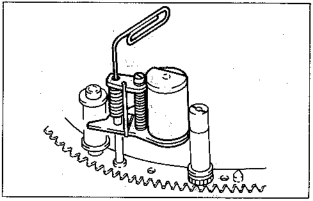


Fig. 2-26

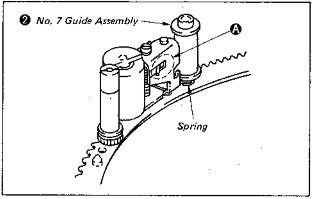

❷ No. 7 Guide Assembly
Ⓐ
Spring

Fig. 2-27

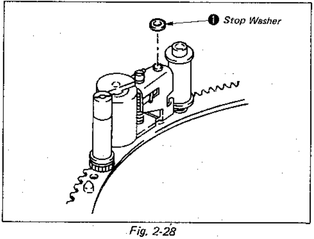

❶ Stop Washer

Fig. 2-28

2-3-9. Slant Guide Chassis Assembly

1. Removal

1) Set up the EJECT mode and raise the cassette compartment asembly.
2) Remove the loading ring assembly as instructed in 2-3-7.
3) Remove the screw ❶ and E ring ❷.
4) Remove the slant guide chassis assembly ❸. (See Fig. 2-29.)

2. Remounting

1) Operate the mode selector and align the righthand edge of the L slider and that of the lock slider. (See Fig. 2-30.)
2) Set the guide base assembly of the slant guide chassis assembly in an unthreading condition (with the guide base assembly moved to the control panel side) and remount it. (See Fig. 2-31.)
Check the meshing position of the slant guide drive gear and the L slider assembly gear at this time.
3) Refit the E ring ❷ and tighten the screw ❶. (See Fig. 2-29.)
4) Set to Condition 1) of 1. Remounting in 2-3-7.
5) Remount the loading ring assembly as instructed in 2-3-7.
6) Lower the cassette compartment assembly.

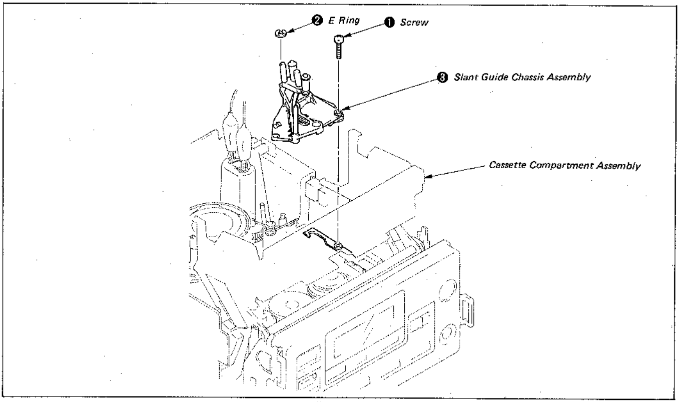

❷ E Ring
❶ Screw
❸ Slant Guide Chassis Assembly
Cassette Compartment Assembly

Fig. 2-29

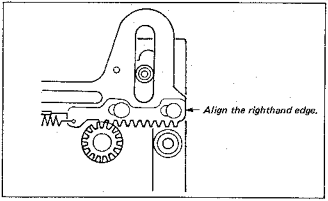

Align the righthand edge.

Fig. 2-30

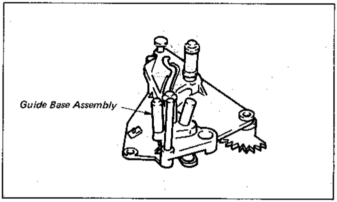

Guide Base Assembly

Fig. 2-31

2-3-10. No. 2 Guide Assembly

1. Removal

1) Remove the tape stopper ❶ .
2) Rotate the rotary upper drum counterclockwise so that the head does not contact.
3) Remove the drum guard screw ❷ .
4) Remove the screw ❸ .
5) Remove the guide nut ❹ of the No. 3 guide, as well as the guide flange ❺ , guide ❻ and compression spring ❼ .
6) Remove the No. 2 guide assembly ❽ . (See Fig. 2-32.)

2. Remounting

1) Mesh the toothless part Ⓐ of the toothed wheel under the No. 2 guide assembly (entrance guide (P) assembly) and that Ⓑ of the L slider.
2) Remount the compression spring ❼ , guide ❻ , and guide flange ❺ in this order and tighten the guide nut ❹ temporarily.
3) Tighten the screw ❸ .
4) Tighten the drum guard screw ❷ .
5) Refit the tape stopper ❶ . (See Fig. 2-32.)

Note: Be sure to adjust the tape path as instructed in 2-4 after remounting.

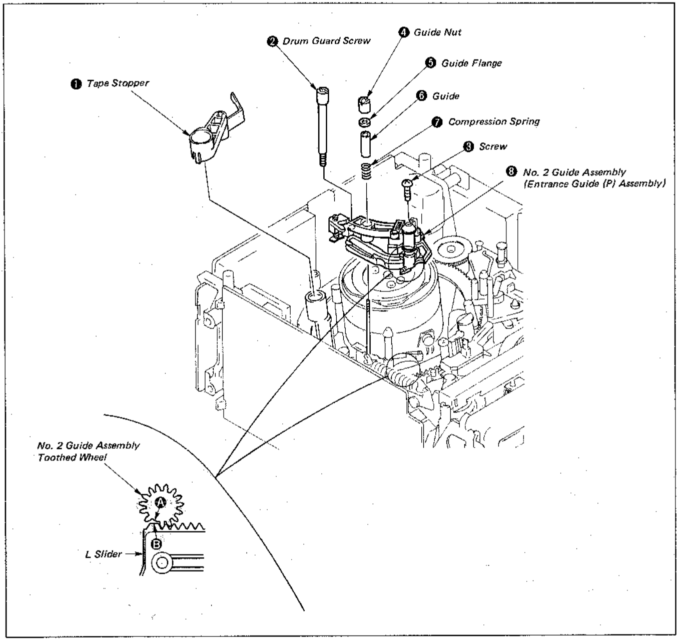

❷ Drum Guard Screw
❹ Guide Nut
❺ Guide Flange
❶ Tape Stopper
❻ Guide
❼ Compression Spring
❸ Screw
❽ No. 2 Guide Assembly (Entrance Guide (P) Assembly)
No. 2 Guide Assembly Toothed Wheel
Ⓐ
Ⓑ
L Slider

Fig. 2-32

2-3-11. L Slider Assembly

1. Removal

1) Remove the slant guide chassis assembly as instructed in 2-3-9.
2) Remove the No. 2 guide assembly (entrance guide (P) assembly) as instructed in 2-3-10.
3) Set up the DRUM START mode.
4) Remove the slant guide drive gear ❶ .
5) Remove the pin of the tension regulator load arm assembly ❷ from the cam groove of the tension regulator arm assembly. (Refer to 2-3-4 Tension regulator arm assembly.)
6) Remove the two stopper washers ❸ .
7) Remove the L slider assembly ❺ push the RL arm assembly lug ❹ toward the arrow Ⓐ .
8) Remove the stopper washer ❻ and tension regulator load arm assembly ❷ . (See Fig. 2-33.)

2. Remounting

1) Grease the parts. (See Fig. 2-34.)
2) Remount the tension regulator load arm assembly ❷ and stop washer ❻ . (See Fig. 2-34.)
3) Remount the L slider assembly ❺ pushing the RL arm assembly lug ❹ toward the arrow Ⓐ .
4) Refit the two stop washers ❸ .
5) Reinsert the pin of the tension regulator load arm assembly ❷ into the groove of the M slider. (Refer to 2-3-15 M Slider.)
6) Reinsert the pin of the tension regulator load arm assembly ❷ in the cam groove of the tension regulator arm assembly referring to 2) of 2. Remounting in 2-3-4. (Refer to 2-3-4 Tension regulator arm assembly.)
7) Operate the mode selector and align the righthand edges of the L slider and lock slider. (Refer to 1) of 2. Remounting in 2-3-9.)
8) Mesh the notch of the slant guide drive gear with the tooth at the lefthand edge of the L slider assembly by sliding one tooth. (See Fig. 2-35.)
9) Remount the No. 2 guide assembly in accordance with 2-3-10.
10) Remount the slant guide chassis assembly as instructed in 2-3-9.

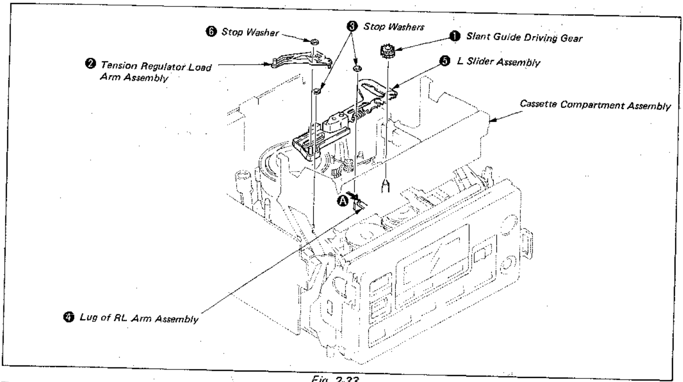

❻ Stop Washer
❸ Stop Washers
❶ Slant Guide Driving Gear
❷ Tension Regulator Load Arm Assembly
❺ L Slider Assembly
Cassette Compartment Assembly
Ⓐ
❹ Lug of RL Arm Assembly

Fig. 2-33

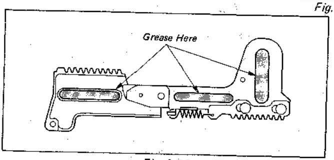

Grease Here

Fig. 2-34

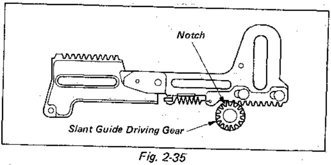

Notch
Slant Guide Driving Gear

Fig. 2-35

2-3-12. L-SW Assembly

1. Removal

1) Remove the L slider assembly as instructed in 2-3-11.
2) Remove the lock slider retainer ❶ .
3) Remove the screw ❷ and lock slider ❸ .
4) Remove the stop washer ❹ and spring ❺ .
5) Remove the drive changer assembly ❻ .
6) Remove the connector ❼ .
7) Remove two screws ❽ and L-SW assembly ❾ . (See Fig. 2-36.)

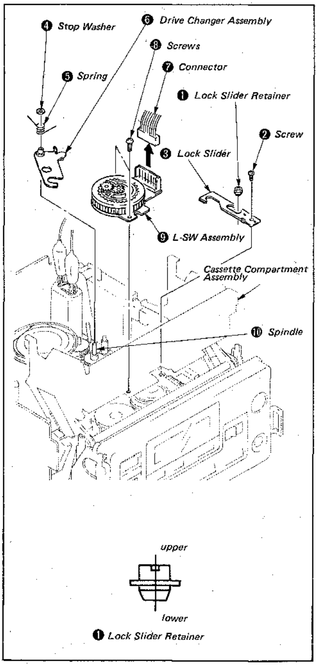

❹ Stop Washer
❻ Drive Changer Assembly
❽ Screws
❼ Connector
❺ Spring
❶ Lock Slider Retainer
❷ Screw
❸ Lock Slider
❾ L-SW Assembly
Cassette Compartment Assembly
❿ Spindle
upper
lower
❶ Lock Slider Retainer

Fig. 2-36

2. Remounting

1) Oil half a drop of oil on the spindle (planetary roller spindle) of the L-SW assembly ❾ .
2) Remount the L-SW assembly ❾ and tighten two screws ❽ .
3) Reconnect the connector ❼ .
4) Operate the mode selector and check that the L-SW assembly ❾ rotates.
5) Oil half a drop of oil on the spindle ❿ .
6) Grease the drive changer assembly ❻ . (See Fig. 2-37.)
7) Remount the drive changer assembly ❻ . (See Fig. 2-36.)
8) Rehook the spring ❺ and refit the stop washer ❹ .
9) Operate the mode selector and check that the L-SW assembly ❾ rotates.
10) Remount the lock slider ❸ and tighten the screw ❷ . Confirm that the positioning dowel is firmly in place.
11) Remount the lock slider retainer ❶ . Note correct vertical direction. (See Fig. 2-36.)
12) Operate the mode selector and set in the position shown in Fig. 2-38. The DC roller should be in the groove.
13) Remount the L slider assembly as instructed in 2-3-11.

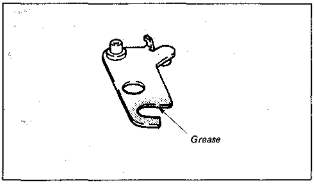


Fig. 2-37

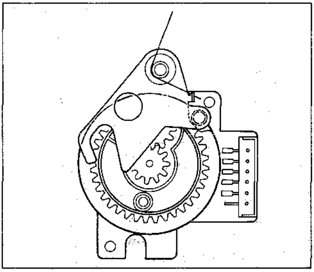


Fig. 2-38

2-3-13. Plunger Solenoid

1. Removal

1) Open the MC-4 Board and disconnect the connector CN501 (white) 3P as instructed in section 2 (disassembly).
2) Remove the cassette compartment assembly as instructed in 2-1-1.
3) Remove the spring ❶ .
4) Remove two stop washers ❷ .
5) Remove the screw ❸ and lock slider ❹ .
6) Remove two screws ❺ and the plunger solenoid ❻ . (Be careful not to inflict scars on the T reel table by a screwdriver. Do not touch the table.) (See Fig. 2-39.)

2. Remounting

1) Reinsert the pin ❼ of the plunger solenoid in the P arm hole ❽ and tighten two screws ❺ . Be careful not to inflict scars on the T reel table by a screwdriver or touch it.)
2) Remount the lock slider ❹ and tighten the screw ❸ .
3) Refit the two stop washers ❷ .
4) Refit the spring ❶ . (See Fig. 2-39.)
5) Remount the cassette compartment assembly in accordance with 2-1-1.
6) Reconnect the connector CN501 (white) 3P on the MC-4 Board.

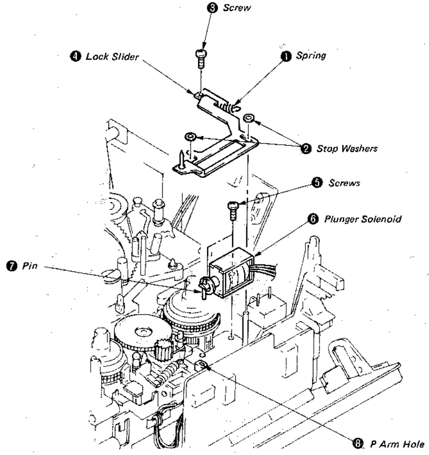


Fig. 2-39

2-3-14. M-SW Assembly

1. Removal

1) Open the MC-4 Board as instructed, in section 2 remove the connector CN515 (black) 2P from the RS-2 Board, and extend the wire stretching to the outside.
2) Remove the T reel table assembly as instructed in 2-3-2.
3) Remove the stop washer ❶ and drive gear (B) assembly ❷.
4) Remove the complete LD-1 board ❸. (See Fig. 2-40.)
5) Remove the lock slider as instructed in 3), 4), and 5) of 1. Removal in 2-3-13.
6) Remove the spring ❹ and B release arm assembly ❺.
7) Check that the EJECT mode is set up.
8) Remove the stop wahser ❻ and mode output gear ❼.
9) Remove the screw ❽ and RECOG SW assembly (S902) ❾.
10) Disconnect the connector ❿.
11) Remove three screws ⓫, control motor cover ⓬ and M-SW assembly ⓭.
12) Remove solder Ⓐ and the control motor (M903) ⓮. (See Fig. 2-41.)

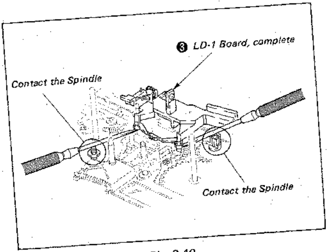

❸ LD-1 Board, complete
Contact the Spindle
Contact the Spindle

Fig. 2-40

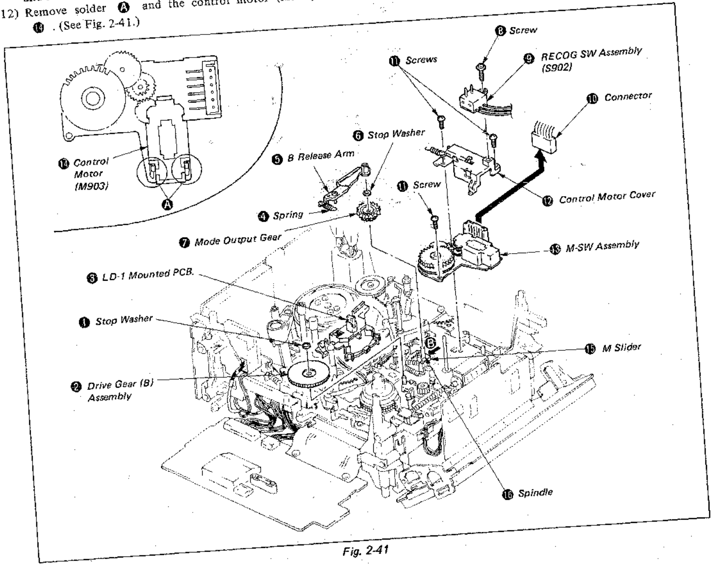

❽ Screw
⓫ Screws
❾ RECOG SW Assembly (S902)
❿ Connector
❻ Stop Washer
❺ B Release Arm
⓫ Screw
⓮ Control Motor (M903)
Ⓐ
⓬ Control Motor Cover
❹ Spring
❼ Mode Output Gear
⓭ M-SW Assembly
❸ LD-1 Mounted PCB.
❶ Stop Washer
Ⓑ
⓯ M Slider
❷ Drive Gear (B) Assembly
⓰ Spindle

Fig. 2-41

2. Remounting

1) Resolder the control motor (M903) ⓮ .
2) Remount the M-SW assembly ⓭ and control motor cover ⓬ and tighten three screws ⓫ .
3) Reconnect the connector ❿ .
4) Remount RECOG SW assembly (S902) ❾ and tighten the screw ❽ .
5) Check that the EJECT mode is set up.
6) Check that the M slider ⓯ is moved toward the arrow Ⓑ fully.
7) Oil half a drop of oil on the spindle ⓰ . (See Fig. 2-41.)
8) Remount the mode output gear ❼ so that the alignment holes are linear. (See Fig. 2-42.)
   Caution required here since there are two holes in the M-SW assembly gear.
9) Refit the stop washer ❻ .
10) Set to the LOADING/UNLOADING mode.
11) Remount the B release arm assembly ❺ and rehook the spring ❹ .
12) Remount the lock slider as instructed in 2), 3) and 4) of 2. Remounting in 2-3-13.
13) Remount the complete LD-1 board ❸ .
14) Remount the drive gear (B) assembly ❷ and refit the stop washer ❶ . (See Fig. 2-41.)
15) Remount the T reel table assembly as instructed in 2-3-2.
16) Connect the connector CN515 (black) 2P to the RS-2 Board.

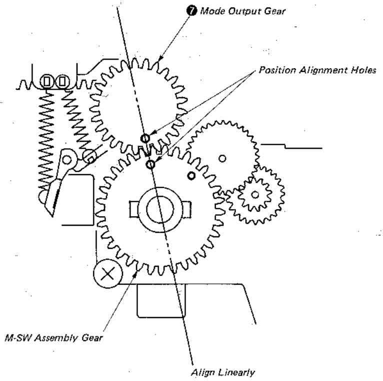


Fig. 2-42

2-3-15. M Slider

1. Removal

1) Open the MC-4 Board as instructed in section 2 and remove the timing belt ①.
2) Remove the pinch press arm assembly as instructed in 2-3-3.
3) Remove the tension regulator arm assembly as instructed in 2-3-4.
4) Remove the tension regulator band assembly as instructed in 2-3-5.
5) Remove the loading ring assembly as instructed in 2-3-7.
6) Perform Steps 1) to 6) of 2-3-14.
7) Remove the tension regulator load arm assembly as instructed in 8) of 1. Removal in 2-3-11.
8) Remove the spring ②.
9) Remove two stop washers ③, S main brake assembly ④ and T main brake assembly ⑤.
10) Set up the LOADING TOP and LOADING/UNLOADING modes.
11) Remove two screws ⑥ and the driving arm complete assembly ⑦.
12) Perform Steps 7) and 8) of 1. Removal in 2-3-14.
13) Remove two springs ⑧.
14) Remove the REW brake assembly ⑨.
15) Remove the stop washer ⑩ and B release slider ⑪.
16) Remove the RVS arm ⑫.
17) Remove the stop washer ⑬, spring ⑭, and RL arm ⑮.
18) Move the M slider ⑯ toward the right (leave approximately 5mm on the left).
19) Remove the E ring ⑰ and pinch press lever assembly ⑱.
20) Remove the spring ⑲ and hard brake (S) ⑳.
21) Remove the stop washer ㉑, push the mode arm ㉒ toward the arrow Ⓐ, then remove the M slider ⑯ by lifting the lefthand side of the M slider ⑯. (See Fig. 2-43.)

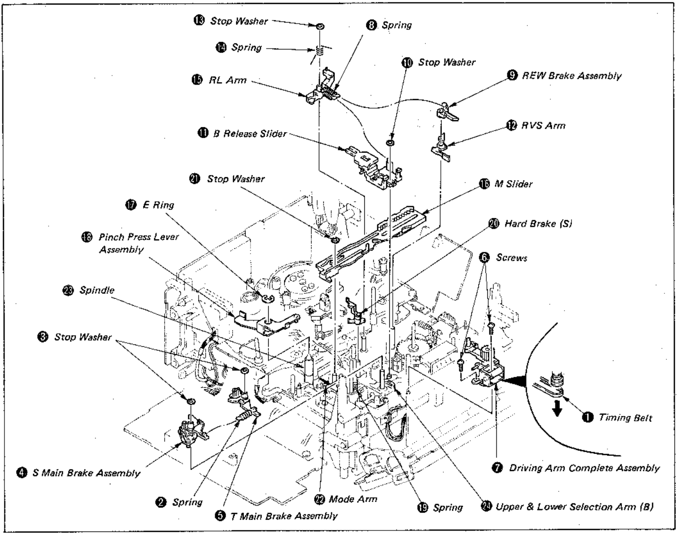

⑬ Stop Washer
⑧ Spring
⑭ Spring
⑩ Stop Washer
⑨ REW Brake Assembly
⑮ RL Arm
⑫ RVS Arm
⑪ B Release Slider
㉑ Stop Washer
⑯ M Slider
⑰ E Ring
⑳ Hard Brake (S)
⑱ Pinch Press Lever Assembly
⑥ Screws
㉓ Spindle
③ Stop Washer
① Timing Belt
⑦ Driving Arm Complete Assembly
④ S Main Brake Assembly
② Spring
㉒ Mode Arm
⑤ T Main Brake Assembly
⑲ Spring
㉔ Upper & Lower Selection Arm (B)

Fig. 2-43

2. Remounting

1) Grease the slider. (See Fig. 2-44.)
2) Push the mode arm ㉒ in the arrow Ⓐ direction, remount the M slider ⑯ referring to Fig. 2-45 and paying attention to the vertical position relationship with other portions of the slider, and refit the stop washer ㉑ . (See Fig. 2-43.)
3) Remount the hard brake (S) ⑳ and rehook the spring ⑲ .
4) Grease as shown in Fig. 2-46.
5) Oil half a drop of oil on the parts below the spindle ㉓ groove, mount the pinch press lever assembly ⑱ , and refit the E ring ⑰ .
6) Remount the RL arm ⑮ , rehook the spring ⑭ , and refit the stop washer ⑬ .
7) Remount the RVS arm ⑫ .
8) Remount the B release slider ⑪ and refit the stop washer ⑩ .
9) Remount the REW brake assembly ⑨ .
10) Rehook two springs ⑧ .

Note: Rehook two springs as noted below so as not to misplace them.
The spring for the B release slider
outside diam: 2mm, wire diam: 0.18mm
The spring for the REW ass'y
outside diam: 1.6mm, wire diam: 0.12mm

11) Move the M slider ⑯ fully to the left.
12) Perform Steps 7), 8) and 9) of 2. Remounting in 2-3-14.
13) Set up the $\boxed{\text{LOADING/UNLOADING}}$ mode.
14) Insert the horizontal spindle of the driving arm complete assembly ⑦ in the groove of the upper & lower selection arm (B) ㉔ , insert the lug of the RVS arm ⑫ in the dented part of the driving arm complete assembly ⑦ , and tighten two screws ⑥ .
15) Remount the T main brake assembly ⑤ and S main brake assembly ④ , refit two each stop washers ③ , and refit the spring ② . (See Fig. 2-43.)
16) Remount the tension regulator load arm assembly as instructed in 2) of 2. Remounting in 2-3-11.
17) Perform Steps 11) to 16) of 2. Remounting in 2-3-14.
18) Remount the loading ring assembly as instructed in 2-3-7.
19) Remount the tension regulator band assembly as instructed in 2-3-5.
20) Remount the tension regulator arm assembly as instructed in 2-3-4.
21) Remount the pinch press arm assembly as instructed in 2-3-3.
22) Open the MC-4 Board referring to section 2 and remount the timing belt ① .

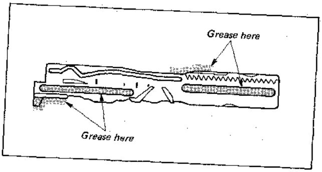


Fig. 2-44

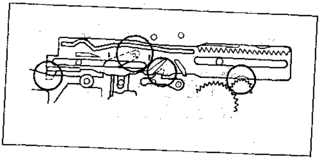


Fig. 2-45

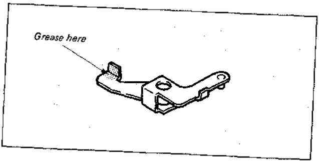


Fig. 2-46

2-3-16. Capstan Motor

1. Removal

1) Remove the tape stopper as instructed in 1) of 1. Removal in 2-3-10.
2) Remove the loading ring assembly as instructed in 2-3-7.
3) Open the MC-4 Board as instructed in section 2 and turn the set upside down.
4) Remove the screw ❶ and the wire holder ❷ .
5) Remove the timing belt ❸ .

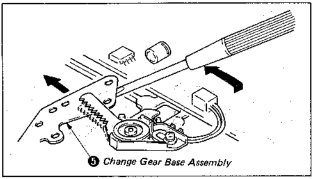

❺ Change Gear Base Assembly

Fig. 2-47

6) Remove the screw ❹ and the change gear base assembly ❺ using a screwdriver. (See Fig. 2-47 and 48.)
7) Disconnect the connectors ❻ and ❼ .
8) Remove two screws ❽ and capstan motor (M902) ❾ as shown by the arrow Ⓐ . (See Fig. 2-48.)

2. Remounting

1) Remount the capstan motor (M902) ❾ and tighten two screws ❽ .
2) Reconnect the connectors ❻ and ❼ .
3) Remount the change gear base assembly ❺ and tighten the screw ❹ .
4) Re-place the timing belt ❸ .
5) Remount the wire holder ❷ and tighten the screw ❶ . (See Fig. 2-48.)
6) Re-place the set in its forward position.
7) Remount the loading ring assembly as instructed in 2-3-7.
8) Remount the tape stopper as instructed in 5) of 2.

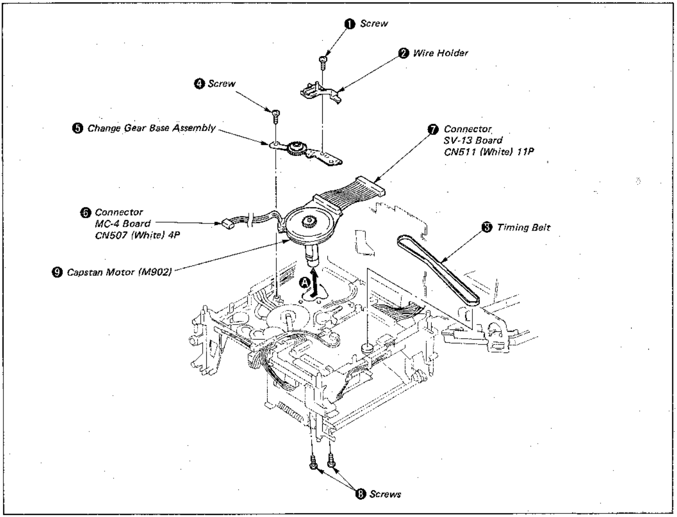

❶ Screw
❷ Wire Holder
❹ Screw
❺ Change Gear Base Assembly
❼ Connector SV-13 Board CN511 (White) 11P
❻ Connector MC-4 Board CN507 (White) 4P
❸ Timing Belt
❾ Capstan Motor (M902)
Ⓐ
❽ Screws

Fig. 2-48

2-3-17. State of Wear of Video Heads Check

As the accuracy of the check depends on the state of the heads and precision of the checker, the results should be taken only as an indication of the state of wear.

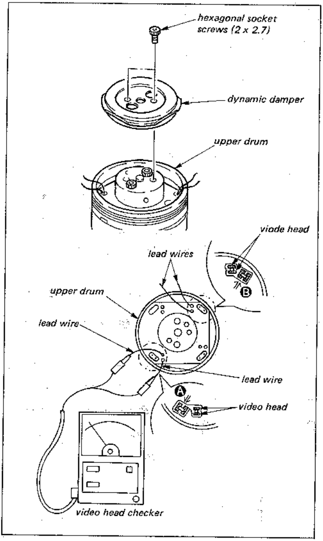
[Adjustment of video head checker]

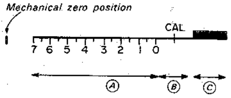
1) Mechanical zero
   Verify that the pointer of the video head checker is at the mechanical zero position. If it is not at this position, adjust the mechanical zero control.
2) Battery voltage check
   Set the MODE switch to "BATT" and set the POWER switch to "ON". The deflection of the pointer should be within the range marked "BATT". If not, replace the battery (use a 6F22 battery) as follows.
3) Calibration check
   Set the POWER switch to "ON" and the MODE switch to "CAL", then adjust the CAL control so that the pointer is on the CAL mark.
   Note 1: Be sure to carry out this adjustment whenever the RANGE switch is changed.
   Note 2: Be sure to check CAL before measuring the head and proceed the measurement after adjusting CAL if CAL is not properly set.

[Method of measurement]

1) Remove the two hexagonal socket screws (2 x 2.7) and dismount the dynamic damper.
2) Unsolder the portions indicated by the arrow Ⓐ and Ⓑ.
3) Solder the lead wires on the 2 video head.
4) Attach the measuring clips to the head leads.
   Be sure to separate the leads by at least 1.5cm.
5) Set RANGE switch to "A" and MODE switch to "MEAS". The pointer will deflect to indicate the state of wear of the heads.

Note: The deflection for the 2 video heads may be different so be sure to measure both.





Ⓐ : Deflection when heads are O.K.
Ⓑ : Deflection when heads need replacing.
Ⓒ : Deflection when heads are worn.

Note:
Heads (rotary upper drum) don't need replacing when the picture is normal on RECORD and PLAYBACK modes, even if the measured value is in the deflection Ⓑ.

MEASURED VALUE

2-3-18. Rotary Upper Drum Replacement

1. Removal

- The rotary upper drum is marked with a color dot as shown in Fig. 2-49.
- Remove the rotary upper drum after recording in advance if recording is possible.

The color combination of rotary upper drum for replacement

New Part		Former Part
Part No.	Color Dot	Color Dot
A-7049-004-A	Blue or Red	Blue or Red
A-7049-017-A	Black or Green	Black or Green

1) Remove two hexagon socket screws (2 x 2.7) ❶ and dismount the dynamic damper ❷ . (See Fig. 2-49.)
2) Suction solder at all of the soldered eight positions Ⓐ . Check that the printed wiring board and pins jutting out from below freely moove using tweezers, or other tool. (See Fig. 2-49.)
3) Remove the two hexagon socket screw (2 x 5) ❸ . (See Fig. 2-49.)
4) Remount the dismounting Jig Ⓑ by the accessory screws ❹ utilizing the screw holes in which the dynamic damper was mounted.
   Drive the hexagon socket screw ❺ into the jig and pulled up the rotary upper drum ❻ . (See Fig. 2-50.)

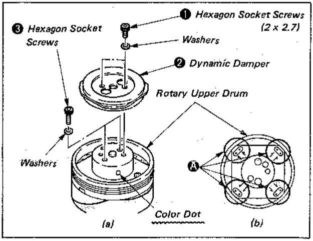

❶ Hexagon Socket Screws (2 x 2.7)
❸ Hexagon Socket Screws
Washers
❷ Dynamic Damper
Rotary Upper Drum
Washers
Ⓐ
Color Dot
(a)
(b)

Fig. 2-49

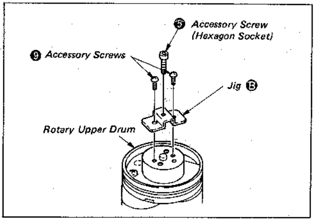

❺ Accessory Screw (Hexagon Socket)
❹ Accessory Screws
Jig Ⓑ
Rotary Upper Drum

Fig. 2-50

2. Remounting

1) Carefully clean the flange surfaces and planes of the rotary upper drum and visually check that no blemishes or flaws are left.
2) Insert Jig Ⓒ in the positioning hole Ⓓ so that the holes of the rotary upper drum ❻ and flange coincide. Lightly insert the rotary upper drum in the drum shaft while aligning their positions. (See Fig. 2-51.) (Check that pins are projecting above the holes on the printed circuit board of the rotary upper drum. When the pins are caught, correct using tweezers, etc.)
3) Remove Jig Ⓒ , lightly push the rotary upper drum by hands. If the rotary upper drum does not go in to the bottom, alternately tighten the two hexagon socket screws (2 x 5) ❸ by hand and temporarily fix them. (See Fig. 2-49 and 2-52.)
4) Reinsert the Jig Ⓒ in the positioning hole and check that the jig can be inserted smoothly. (When the jig cannot be inserted, loosen the two hexagon socket screws (2 x 5) ❸ and slide it inserting a clock screw-driver in the hole.)
5) Tighten the two hexagon socket screws (2 x 5) ❸ .

Note: Do not tighten too strongly.

6) Solder the eight positions Ⓐ . (See Fig. 2-49.)

Note: Be careful not to flow solder below the printed wiring board.

7) Tighten the two hexagon socket screws (2 x 2.7) ❶ reversing the screw removal procedure and remount the dynamic damper ❷ . (See Fig. 2-49.)

Note: Do not tighten too strongly.
When remounting, do not mix the hexagon socket screws (2 x 2.7) ❶ and hexagon socket screws (2 x 5) ❸ .

Note: Be sure to adjust the tape path as instructed in 2-4 after remounting.

Note: Replay the recorded tape after adjusting the tape path and before exchanging the rotary upper drum and check that the tape replays properly.

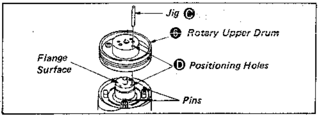

Jig Ⓒ
❻ Rotary Upper Drum
Flange Surface
Ⓓ Positioning Holes
Pins

Fig. 2-51

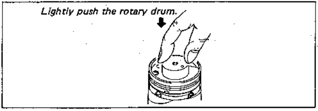

Lightly push the rotary drum.

Fig. 2-52

2-3-19. Drum Assembly Replacement

1. Removal

1) Open the MC-4 Board as instructed in section 2.
2) Remove the screw ❶ and head lead shield plate ❷ .
3) Remove the screw ❸ and shaft ground terminal ❹ . (See Fig. 2-53.)
4) Disconnect six connectors ❺ .
5) Remove two screws ❻ .
6) Remove the drum assembly ❼ . (See Fig. 2-54.)

2. Remounting

1) Remount the drum assembly ❼ and tighten two screws ❻ .
2) Connect six connectors ❺ . (See Fig. 2-54.)
3) Remount the shaft ground terminal ❹ and tighten the screw ❸ .
4) Remount the head lead shield plate ❷ and tighten the screw ❶ . (See Fig. 2-53.)

Note: Be sure to adjust the tape path as instructed in 2-4 after remounting.

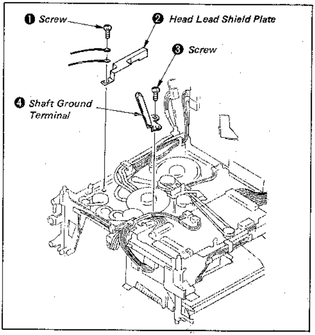

❶ Screw
❷ Head Lead Shield Plate
❸ Screw
❹ Shaft Ground Terminal

Fig. 2-53

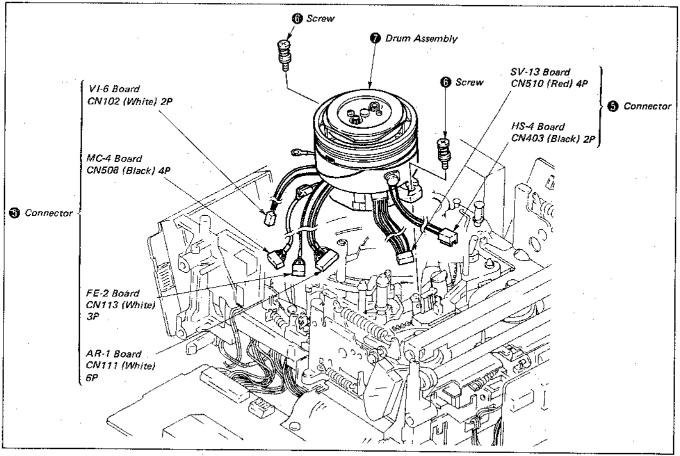

❻ Screw
❼ Drum Assembly
❻ Screw
SV-13 Board CN510 (Red) 4P
HS-4 Board CN403 (Black) 2P
❺ Connector
VI-6 Board CN102 (White) 2P
MC-4 Board CN508 (Black) 4P
❺ Connector
FE-2 Board CN113 (White) 3P
AR-1 Board CN111 (White) 6P

Fig. 2-54

2-3-20. Adjustment After Replacing No. 3 and 4 Guides

Run the tape on the upper flanges for both No. 3 and 4 guides after replacing them. (See Fig. 2-90.)

2-3-21. No. 5 Guide Assembly

1. Removal

1) Remove the tape stopper as instructed in 1) of 1. Removal in 2-3-10.
2) Remove three screws ❶ and No. 5 guide assembly.
3) Remove the guide nut ❷ , the spring ❸ and the shaft 4 . (See Fig. 2-55.)

2. Remounting

1) Reinsert the spring ❸ in the shaft ❹ , reengage the dent and bump in the lower parts, and tighten the guide nut ❷.
2) Remount the No. 5 guide assembly and tighten three screws ❶ . (See Fig. 2-55.)
3) Remount the tape stopper as instructed in 5) of 2. Remounting in 2-3-10.

Note: Be sure to adjust the tape path as instructed in 2-4 after remounting.

2-3-22. FWD Back Tension Adjustment

1) Set up the LOADING END and FWD modes.
2) Loosen the screw ❷ of the band adjustment plate ❶ , adjust the slit ❸ and pin ❹ of the tension regulator arm assembly to be in the position shown by the arrow Ⓐ in the Fig. 2-56, then tighten the screw ❷ .
3) Place the reel (Ref. No. J-7) ❻ to measure tensions on the S reel table ❺ and run a tape along No. 1, 2 and 3 guides and the drum.

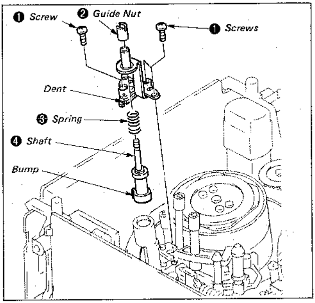

❶ Screw
❷ Guide Nut
❶ Screws
Dent
❸ Spring
❹ Shaft
Bump

Fig. 2-55

4) Pull the dial tension gauge (Ref. No. J-6) ❼ in the arrow Ⓑ direction and re-place the spring ❾ on the tension regulator spring hook assembly ❽ as mentioned below so that the value becomes 13.0 ±1g. (See Fig. 2-56.)

Larger than standard . . . . .Arrow Ⓒ direction
Smaller than standard. . . . . Arrow Ⓓ direction

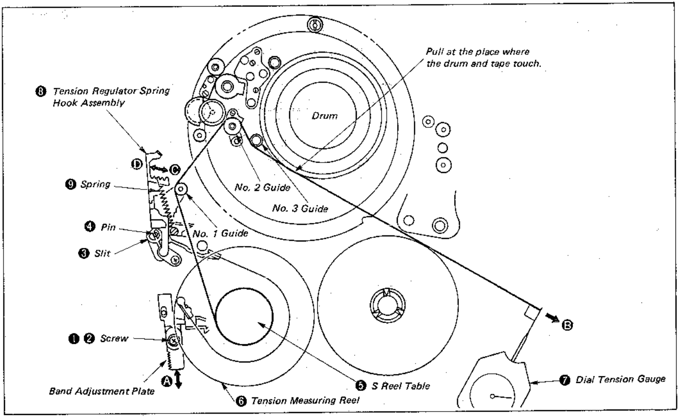

Pull at the place where the drum and tape touch.
❽ Tension Regulator Spring Hook Assembly
Drum
Ⓓ
Ⓒ
❾ Spring
No. 2 Guide
No. 3 Guide
❹ Pin
No. 1 Guide
❸ Slit
Ⓑ
❶ ❷ Screw
Band Adjustment Plate
Ⓐ
❺ S Reel Table
❻ Tension Measuring Reel
❼ Dial Tension Gauge

Fig. 2-56

2-3-23. Checking and Adjustment of Timing Belt Tension

1) Remove the timing belt. (Refer to 1) of 1. Removal in 2-3-15.)
2) Cover the LED photodetector section (HS-4 Board) for tape end detection with a vinyl tape, and load.
3) Short TP603 and TP604 on the SK-7 Board. (See Fig. 2-57.)
4) Disengage the pinch press arm side (round hook side) of the tension spring hooked on the pinch press arm assembly. (See Fig. 2-58.)
5) Hold the safety pin of the RECOG switch (rec proof side) and tape it. press the REC button to set up the REC mode. (See Fig. 2-59.)
6) Measure the voltage (Vo) between CAP I_1 and CAP I_2 on the SV-13 Board using an analog tester. (No-load state) (See Fig. 2-60.)
7) Remount the timing belt. (Refer to 4) of 2. Remounting in 2-3-16.
8) Remove the driving gear (B) assembly as instructed in 3) of 1. Removal in 2-3-14.
9) Measure the voltage (Vx) between CAP I_1 and CAP I_2 as in 6) after setting up the REC mode as mentioned in 5). (When adjusting the belt tension.)
10) Check that the voltage (Vx) during tension adjustment is 22 to 44mV higher than the voltage (Vo) in a no-load state. Adjust as follows if the voltage is not as required.

Adjustment Method:

- i) Loosen the screw ❶ , slide the idler assembly as shown by the arrow Ⓐ , and fix it by tightening the screw ❶ . (See Fig. 2-61.)
- ii) Recheck after performing Step 9).
- iii) Repeat i) and ii) until the standard is satisfied.

11) Remove the short between TP603 and TP604 on the SK-7 Board.
12) Remount the driving gear (B) assembly and the tension spring of the pinch press arm assembly.

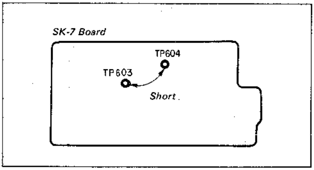


Fig. 2-57

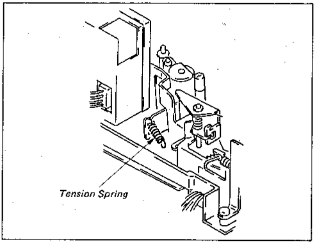


Fig. 2-58

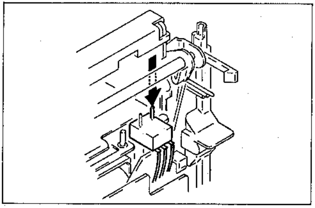


Fig. 2-59

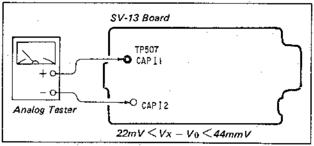


Fig. 2-60

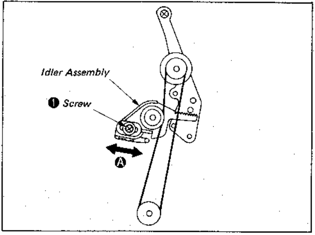


Fig. 2-61

2-3-24. Checking S and T Main Brake Torques

1) Open the control panel as instructed in section 2.
2) Remove the cassette compartment assembly as instructed in 2-1-1.

1. S main brake torque

1) Set up the FF/REW mode.
2) place the tension measuring reel (Ref. No. J-8) on the S reel table.
3) Pull the dial tension gauge (Ref. No. J-6) toward the arrow and check that the value satisfies the required value. (See Fig. 2-62 and 63.)

2. T main brake torque

1) Set up the FF/REW mode.
2) Place the tension measuring reel (Ref. No. J-8) on the T reel table.
3) Pull the dial tension gauge (Ref. No. J-6) toward the arrow and check that the value satisfies the required value. (See Fig. 2-64 and 65.)

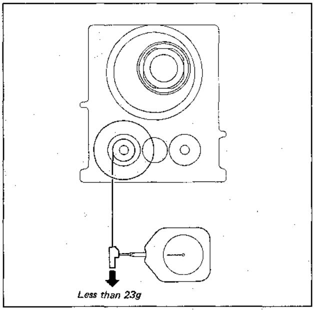


Fig. 2-62

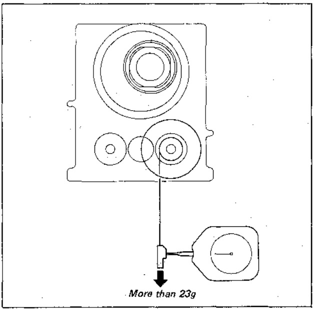


Fig. 2-64

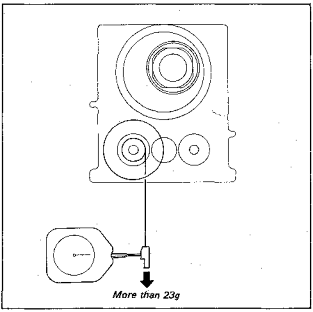


Fig. 2-63

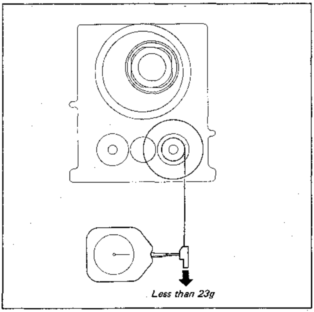


Fig. 2-65

2-3-25. Checking S and T Saft Brake Torques

1) Open the control panel as instructed in section 2.
2) Remove the cassette compartment assembly as instructed in 2-1-1.

1. S soft brake torque

1) Set up the FF/REW mode.
2) Place the tension measuring reel (Ref. No. J-8) on the S reel table.
3) Release the S main brake with a finger.
4) Pull the dial tension gauge (Ref. No. J-6) toward the arrow and check that the value satisfies the required value. (See Fig. 2-66.)

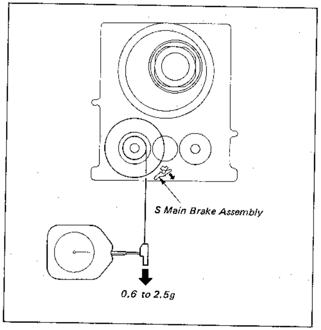


Fig. 2-66

2. T soft brake torque

1) Set up the REV mode.
2) Place the tension measuring reel (Ref. No. J-8) on the T reel table.
3) Release the T main brake with a finger.
4) Pull the dial tension gauge (Ref. No. J-6) toward the arrow and check that the value satisfied the required value. (See Fig. 2-67.)

Note: In the REV mode, both the T soft brake and REW brake are engaged.

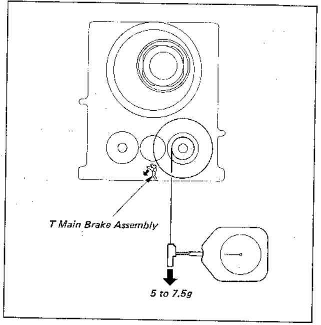


Fig. 2-67

2-3-26. Checking REV and REW Brake Torques

1) Open the control panel as instructed in section 2.
2) Remove the cassette compartment assembly as instructed in 2-1-1.

1. REV brake torque

1) Set up the REV mode.
2) Place the tension measuring reel (Ref. No. J-8) on the S reel table.
3) Release the S main brake assembly with a finger.
4) Pull the dial tension gauge (Ref. No. J-6) toward the arrow and check that the value satisfies the required value. (See Fig. 2-68.)

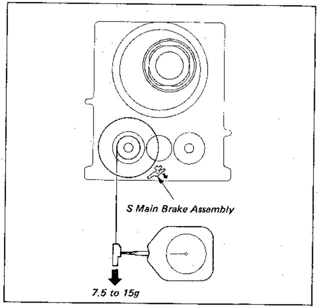


Fig. 2-68

2. REW brake torque

1) Set up the FF/REW mode.
2) Place the tension measuring reel (Ref. No. J-8) on the T reel table.
3) Pull the dial tension gauge (Ref. No. J-6) toward the arrow and check that the value satisfies the required value. (See Fig. 2-69.)

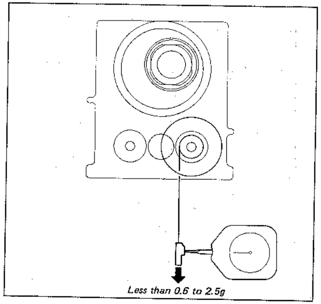
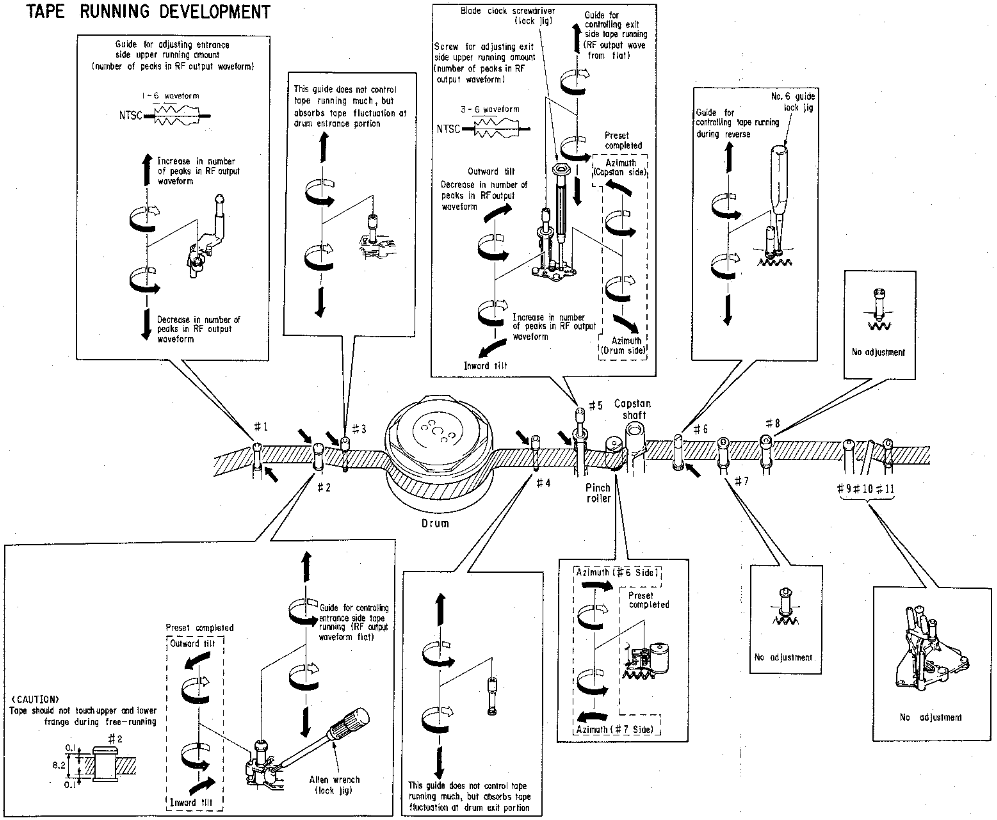


Fig. 2-69

2-3-27. Checking by FWD and RVS Take-Up Torque Cassette

1) Set the FWD and RVS take-up torque cassette (Ref. No. J-12).
2) Set up the PLAY BACK mode and check that the torque value on the T reel table side is 9.5 to 15.5g-cm.
3) Set up the PLAY BACK mode and check that the torque value on the S reel table side immediately after pressing the REW button is 17 to 23g-cm.
4) Replace the reel tables if the foregoing values are not satisfied.

TAPE RUNNING DEVELOPMENT


Guide for adjusting entrance side upper running amount (number of peaks in RF output waveform)
1 ~ 6 waveform
NTSC
Increase in number of peaks in RF output waveform
Decrease in number of peaks in RF output waveform
This guide does not control tape running much, but absorbs tape fluctuation at drum entrance portion
Blade clock screwdriver (lock jig)
Screw for adjusting exit side upper running amount (number of peaks in RF output waveform)
3 ~ 6 waveform
NTSC
Guide for controlling exit side tape running (RF output wave from flat)
Preset completed
Azimuth (Capstan side)
Outward tilt
Decrease in number of peaks in RF output waveform
Increase in number of peaks in RF output waveform
Inward tilt
Azimuth (Drum side)
Guide for controlling tape running during reverse
No. 6 guide lock jig
No adjustment
#1
#2
#3
#4
#5
Capstan shaft
#6
#7
#8
#9 #10 #11
Drum
Pinch roller
<CAUTION>
Tape should not touch upper and lower frange during free-running
#2
0.1
8.2
0.1
Preset completed
Outward tilt
Inward tilt
Guide for controlling entrance side tape running (RF output waveform flat)
Allen wrench (lock jig)
This guide does not control tape running much, but absorbs tape fluctuation at drum exit portion
Azimuth (#6 Side)
Preset completed
Azimuth (#7 Side)
No adjustment
No adjustment

2-4. TAPE PATH ADJUSTMENT

- **Make tape path adjustment after checking that electrical adjustment is made.**

2-4-1. Preparation for Adjustment

1) Clean the parts on which the tape runs (tape guide, drum, capstan spindle and pinch roller).
2) Connect an oscilloscope as follows:
   1CH: Pin ③ of CN112 (AR-1 Board): CH-2 output
   2CH: Pin ② of CN112 (AR-1 Board): External trigger
   (See Fig. 2-70.)

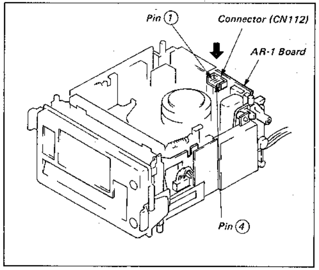

Pin ①
Connector (CN112)
AR-1 Board
Pin ④

Fig. 2-70

3) Replay the tracking alignment tape (WR5-1N) and check that the RF waveforms are flat (Fig. 2-71 ⓐ) on the inlet and outlet sides. If not, adjust as follows.

- If RF waveform on inlet side is not flat. (Fig. 2-71 ⓑ). . . Adjust as instructed in 2-4-2 Inlet side adjustment.
- If RF waveform on outlet side is not flat. (See Fig. 2-71 ⓒ) . . . Adjust as instructed in 2-4-3 Outlet side adjustment.

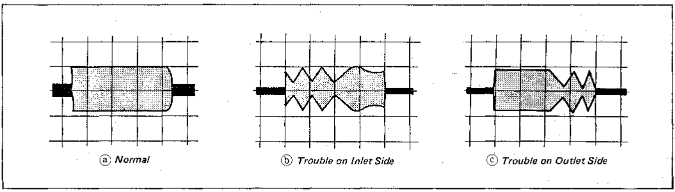

ⓐ Normal
ⓑ Trouble on Inlet Side
ⓒ Trouble on Outlet Side

Fig. 2-71

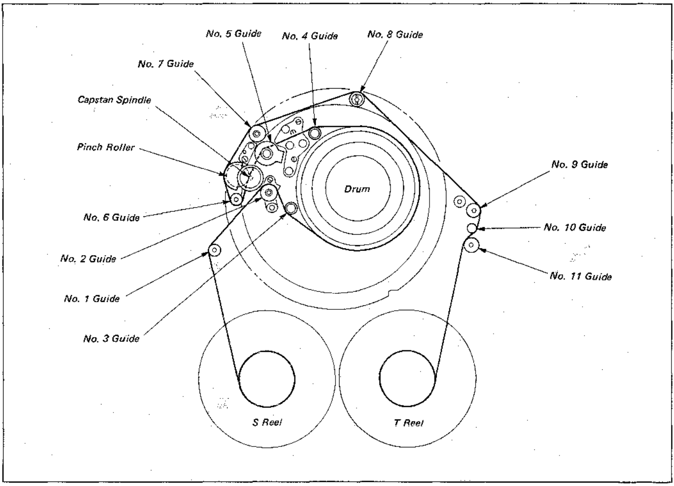

No. 5 Guide
No. 4 Guide
No. 8 Guide
No. 7 Guide
Capstan Spindle
Pinch Roller
No. 6 Guide
No. 2 Guide
No. 1 Guide
No. 3 Guide
Drum
No. 9 Guide
No. 10 Guide
No. 11 Guide
S Reel
T Reel

Fig. 2-72 Tape Guide Layout

2-4-2. Inlet Side Adjustment

1) Replay the tracking alignment tape, loose No. 2 guide lock screw ❶ , rotate No. 2 and 3 guides counterclockwise, and free the tape run on the inlet side. (See Fig. 2-73.)

   Note: The space between the top and bottom flanges of No. 2 guide is narrow. Check that the tape is contacting neither top nor bottom flanges this time. The tape contacts the bottom flange and the RF waveform on the inlet side will have more than six ridges if No. 2 guide is too loose.

2) Check that the RF waveform on the inlet side has 1 to 6 ridges in this condition. If not, adjust as follows. (See Fig. 2-74.)

   Note: Do not touch the No. 2 guide gate screw ❷ since it has been preset at the factory. If off standard, adjust the height adjustment screw of the No. 1 guide (tension regulator assembly) by turning it clockwise 90° at a time. (See Fig. 2-75.)

3) Slowly rotate No. 2 guide clockwise to make the inlet side waveform nearly flat. (See Fig. 2-76.)

   Note: Do not rotate No. 2 guide excessively.

4) Rotate No. 3 guide clockwise to make the inlet side waveform completely flat, then rotate clockwise slightly (approximately 15°). (See Fig. 2-77.)
5) Check the tape curl of No. 3 guide flange. If tape is curled, rotate No. 2 guide clockwise little by little until the curling is eliminated.
6) Tighten No. 2 lock screw ❶. (See Fig. 2-73.)

   Note: Check the adjustment as mentioned in 2-4-4.

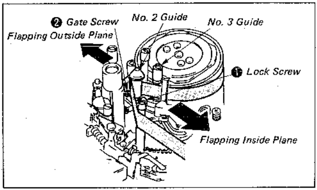

❷ Gate Screw
No. 2 Guide
No. 3 Guide
Flapping Outside Plane
❶ Lock Screw
Flapping Inside Plane

Fig. 2-73

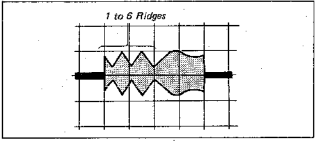

1 to 6 Ridges

Fig. 2-74

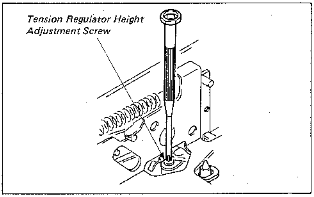

Tension Regulator Height
Adjustment Screw

Fig. 2-75

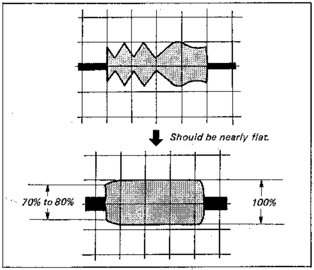

Should be nearly flat.
70% to 80%
100%

Fig. 2-76

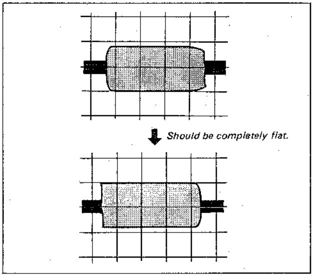

Should be completely flat.

Fig. 2-77

2-4-3. Outlet Side Adjustment

- Start this adjustment by removing the tape stopper as instructed in 1) of 1. Removal in 2-3-10.

1) Play back the tracking alignment tape, rotate No. 4 guide counterclockwise and No. 5 guide clockwise, respectively, then free the tape running on the outlet side. (See Fig. 2-78.)

   Note:
   - A screw lock agent sticking No. 5 guide nut may prevent the nut from rotating. Rotate the guide after immersing alcohol in the nut thread and dissolving the screw lock agent.
   - Check that the tape is not contacting the top and bottom flanges of No. 5 guide during free tape running.

2) Check that the RF waveform on the outlet side has 3 to 6 ridges. If not, readjust as follows. (See Fig. 2-79.)

If off standard

   i) Rotate the lock screw ❶ counterclockwise to loosen.
   ii) Slowly rotate the gate screw ❷ by 45° and wait until the RF waveform changes.
   iii) Rotate the lock screw ❶ clockwise to tighten. (See Fig. 2-78.)

   Note:
   - The waveform changes if the lock screw is tightened too tightly. Tighten moderately.
   - Never rotate the azimuth screw of No. 5 guide.

3) Rotate No. 5 guide counterclockwise to make the RF waveform on the outlet side nearly flat. (See Fig. 2-80.)

   Note: The waveform reaction is slow to nut rotation. Rotate the nut after the waveform variations are stabilized.

4) Rotate No. 4 guide clockwise to make the RF waveform on the outlet side completely flat and slightly rotate clockwise (approximately 15°) from this condition. (See Fig. 2-81.)

5) Check tape curling of No. 4 guide flange. Rotate No. 5 guide nut counterclockwise little by little until curling is eliminated if the tape is curled.

   Note: Be sure to check as mentioned in 2-4-4 after making the adjustment.

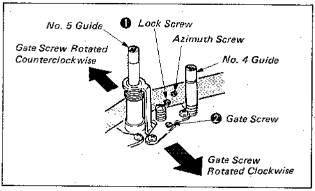

No. 5 Guide
❶ Lock Screw
Azimuth Screw
Gate Screw Rotated Counterclockwise
No. 4 Guide
❷ Gate Screw
Gate Screw Rotated Clockwise

Fig. 2-78

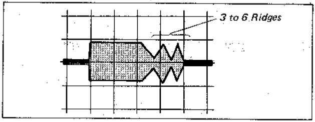

3 to 6 Ridges

Fig. 2-79

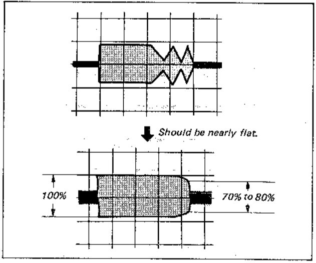

Should be nearly flat.
100%
70% to 80%

Fig. 2-80

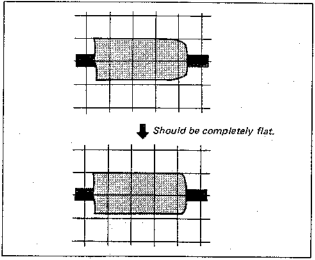

Should be completely flat.

Fig. 2-81

2-4-4. Checking After Adjustment

1. Tracking check

1) Record TV signals, play back recorded signals, and check that quality of both pictures and sounds is satisfactory.
2) Play back the tracking alignment tape and check that RF waveforms do not have large variations.
3) Set up the REV mode and check that the waveform noise pitches are uniform. If not, adjust as follows. (See Fig. 2-82.)

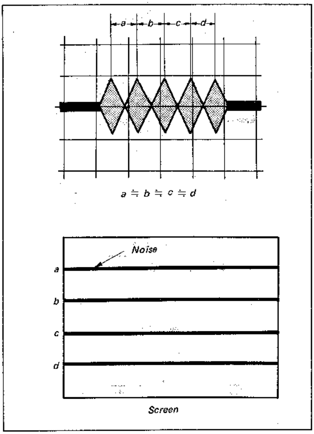

a
b
c
d
$a \fallingdotseq b \fallingdotseq c \fallingdotseq d$
Noise
a
b
c
d
Screen

Fig. 2-82

[Narrow noise pitch on inlet side (upper screen)]
(See Fig. 2-83.)

Check that the RF waveforms are flat in the PLAYBACK mode.

Waveform is not flat:

Adjust the heights of No. 2 and 3 guides as in 2-4-2 Inlet side adjustment.

Waveform is flat:

Rotate No. 1 guide (tension regulator height adjusting screw) and No. 2 guide gate screw 90° counterclockwise to recheck. (See Fig. 2-75.)

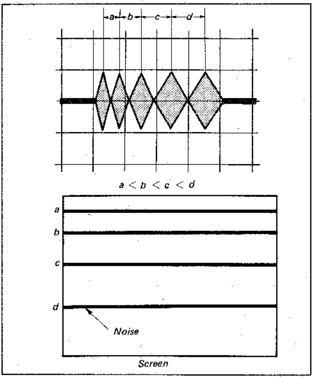

a
b
c
d
$a < b < c < d$
a
b
c
d
Noise
Screen

Fig. 2-83

[Narrow noise pitch on outlet side (lower screen)]
(See Fig. 2-84.)

Set up the PLAYBACK mode and adjust No. 4 and 5 guide heights as in 2-4-3. Outlet side Adjustment.

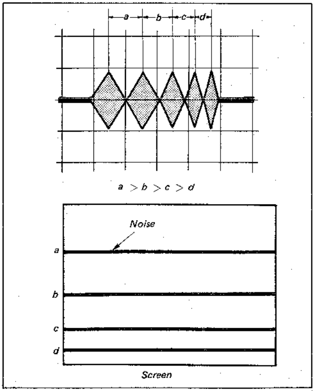

a
b
c
d
$a > b > c > d$
Noise
a
b
c
d
Screen

Fig. 2-84

[Wide noise pitch on outlet side (lower screen)]
(See Fig. 2-85.)

Set up the PLAYBACK mode and check that the RF waveform is flat.

Waveform is not flat:

Adjust height of No. 4 and 5 guides as in 2-4-3. Outlet side adjustment.

Waveform is flat:

Rotate the guide lower toothed wheel counterclockwise by No. 6 guide lock jig (Ref. No. J-11) to loosen the toothed wheel. Rotate No. 6 guide counterclockwise 45° to tighten the lower toothed wheel. Recheck the RF waveform of the REV mode. (See Fig. 2-86.)

Note: Wrinkles may be caused in Part Ⓐ between the capstan spindle and No. 5 guide if No. 6 guide is raised excessively. Check that no wrinkles are caused. (See Fig. 2-87.)

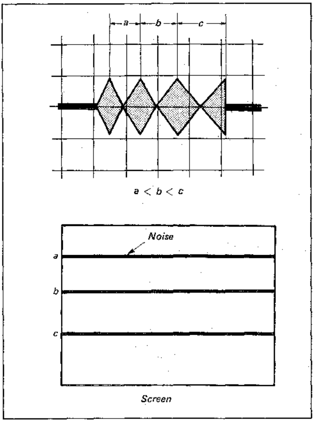

a
b
c
a < b < c
Noise
a
b
c
Screen

Fig. 2-85

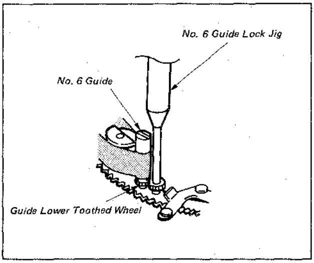

No. 6 Guide Lock Jig
No. 6 Guide
Guide Lower Toothed Wheel

Fig. 2-86

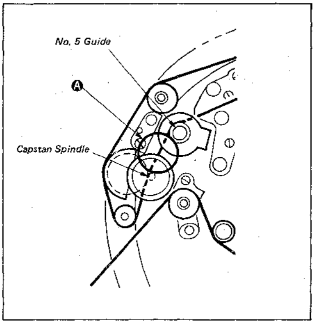

No. 5 Guide
Ⓐ
Capstan Spindle

Fig. 2-87

2. Checking rising edge

1) Check that the RF waveform rises horizontally during playing back after finishing loading, after CUE/REV, and during playing back after FF. If not, adjust as follows.

[Noise occurs on outlet side (lower screen) with rising during playing back after finishing loading] (See Fig. 2-88.)

Check that the FWD back tension is not too low.

If too low:

Readjust as instructed in 2-3-22. FWD back tension adjustment.

If normal:

Rotate the azimuth screw of the pinch roller clockwise by 15° and adjust after rechecking the rising edge. (See Fig. 2-89.)

[Noise occurs on outlet side (lower screen) with rising during playing back after REV] (See Fig. 2-88.)

Loosen the guide lower toothed wheel of No. 6 guide using No. 6 guide lock jig, rotate No. 6 guide 90° counterclockwise to tighten the toothed wheel, then recheck the rising edge.

Note: Wrinkles may be caused in Part Ⓐ of Fig. 2-87 if No. 6 guide is raised excessively this time, between the capstan spindle and No. 5 guide, check that no wrinkles are caused.

[Noise occurs on outlet side (lower screen) with rising during playing back after FF] (See Fig. 2-88.)

Check that the FWD back tension is not too low.

If too low:

Readjust as required in 2-3-22. FWD back tension adjustment.

If normal:

Rotate the azimuth screw of the pinch roller clockwise by 15° and adjust after checking the rising edge. (See Fig. 2-89.)

Note: Be sure to check playback rising after finishing loading in case an adjustment is made.

3. Tape run check

Check that the tape is not raised or curled at each guide flange of No. 1 to 6 (pointed by the arrows in Fig. 2-90) in PLAYBACK, CUE and REV modes.

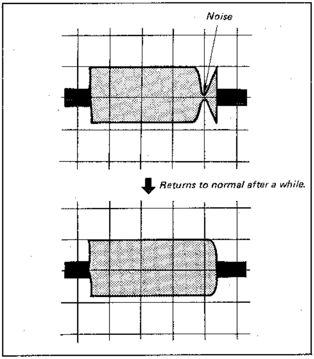

Noise
Returns to normal after a while.

Fig. 2-88

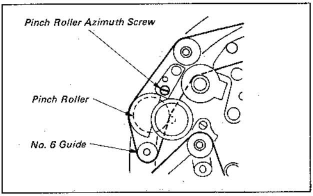

Pinch Roller Azimuth Screw
Pinch Roller
No. 6 Guide

Fig. 2-89

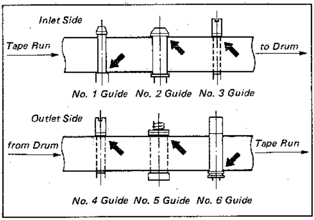

Inlet Side
Tape Run
to Drum
No. 1 Guide
No. 2 Guide
No. 3 Guide
Outlet Side
from Drum
Tape Run
No. 4 Guide
No. 5 Guide
No. 6 Guide

Fig. 2-90

3. VIDEO SECTION ADJUSTMENT

The following measuring instruments are needed in adjusting the video section.

[Equipment]

1) Monitor TV
2) AC adapter or T/T unit
3) Oscilloscope, 2 phenomena, band 10MHz or wider, with delay mode (Use a 10:1 probe unless otherwise specified)
4) Frequency counter
5) Pattern generator, with video output terminal
6) Digital voltmeter
7) Audio generator
8) Audio level meter
9) Audio distortion meter
10) Audio attenuator
11) Regulated power supply
12) Alignment tapes
    Tracking adjustment (WR5-1N) Parts code: 8-967-995-01
    Video frequency characteristic adjustment (WR5-2N) Parts code: 8-967-995-11
    Operation checking (WR5-3NSP) Parts code: 8-967-995-22
    (WR5-3NL) Parts code: 8-967-995-31

[Equipment Connection]

Unless otherwise specified, adjustment is made by connecting the measuring instruments as shown below.

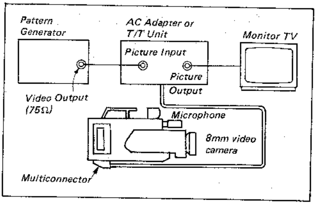

Pattern Generator
AC Adapter or T/T Unit
Monitor TV
Picture Input
Picture Output
Video Output (75Ω)
Microphone
8mm video camera
Multiconnector

Fig. 3-1

Setting up during adjustment

Video signals output by an pattern generator are used as adjustment signals when adjusting the video section, and these video output signals should be within the required standard. Connect an oscilloscope to TP121 (VIDEO IN) on the VI-6 Board. Check that the amplitudes of video signal SYNC signals, of picture portions, and of burst signals are flat at approximately 0.3, 0.7, and 0.3V, respectively, and that the level ratio of the burst signals and "red" signals are 0.30:0.66.

Fig. 3-2 shows video signals (color bars) used in adjusting the video section.

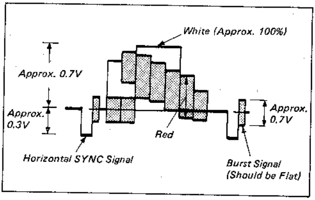
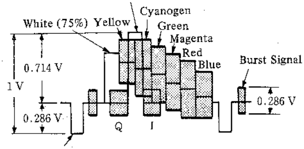
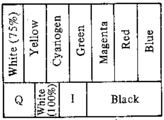

White (Approx. 100%)
Approx. 0.7V
Approx. 0.3V
Approx. 0.7V
Red
Horizontal SYNC Signal
Burst Signal (Should be Flat)

Fig. 3-2 Pattern Generator Color Bar Signals

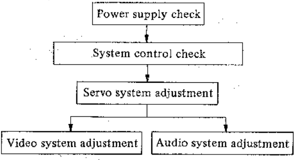
Tape	Content	Use
Tracking (WR5-1N)	1. Recording area: PCM – video 2. Recording content: CH2: 1MHz linearity adjustment signal (CH1: 9MHz)	Drum linearity adjustment
Video Frequency Characteristic (WR5-2N)	1. Recording area: Video 2. Recording content: RF sweep 0 to 10MHz 3. Marker: 1, 3.58, 5.5 and 7MHz	Frequency characteristic adjustment
Operation Check SP mode (WR5-3NSP) LP mode (WR5-3NL)	1. Recording area: Video 2. Recording content: ■ Video area ● Video signals Color bars 10sec, Monoscope 8sec } Iterative (Color bars)  White (100%) Cyanogen White (75%) Yellow Green Magenta Red Blue Burst Signal 0.714 V 1 V 0.286 V 0.286 V Q I Horizontal SYNC Signal  White (75%) Yellow Cyanogen Green Magenta Red Blue Q White (100%) I Black ● Audio signals 400Hz 60% modulation ■ PCM area (WR5-3NSP only) ● Audio signals 1kHz 0dBs 10sec 20Hz –6dBs 2sec 400Hz –6dBs 4sec 14kHz –0.7dBs 2sec } Iterative	Operation checking

Input/output level and impedance to T/T unit or AC adapter

Video input pin jack
Input signals: 1Vp-p, 75Ω unbalanced, sync negative
Video output pin jack
Output signals: 1Vp-p, 75Ω unbalanced, sync negative
Audio input pin jack
Input level: –10dBs (0dBS = 0.775Vrms)
Input impedance: 47kΩ or higher
Audio output pin jack
Regulated output: –10dBs
Load impedance: 47kΩ or higher

Adjusting Procedure

Adjust in the following sequence:


Power supply check
System control check
Servo system adjustment
Video system adjustment
Audio system adjustment

3-1. POWER SUPPLY CHECK (VI-6 Board)

Mode: E-E
Digital voltmeter: + probe: Pin ③ of CN006
– probe: Pin ⑥ of CN006

[Checking Method]

Must be 5.0 ±0.15V dc.

3-2. SYSTEM CONTROL ADJUSTMENT

3-2-1. Battery Failure Adjustment (HS-4, SK-7 Board)

Cassette holder: A cassette tape should not be contained.
Multiconnector: Nothing shall be connected.
Regulated power supply and digital voltmeter: See Fig. 3-3.
Oscilloscope CH1: TP604 (SK-7 Board)
CH2: TP606 (SK-7 Board)

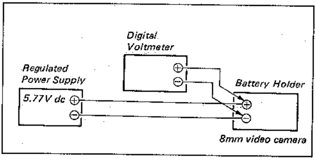


Fig. 3-3

[Adjustment Method]

1) Set the regulated power supply to 5.77V dc and turn on "VTR POWER".
2) Short TP603 and TP604 on the SK-7 Board by a jumper wire.
3) Rotate RV601 on the HS-4 Board and set to the position where a pulse is generated on CH2. (See Fig. 3-4.)
4) Rotate RV601 slowly in an opposite direction and stop it when the CH2 pulse disappears.
5) Disconnect the jumper wire.

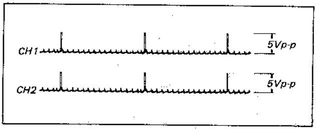


Fig. 3-4 Battery Failure Adjustment

3-2-2. Flying Erase Check (FE-2 Board)

Mode: RECORD
Oscilloscope: TP101

[Checking Method]

The oscillation frequency shall be 5MHz to 8MHz and level, approximately 9Vp-p.

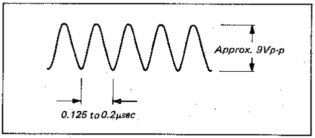


Fig. 3-5 Flying Erase Check

3-3. SERVO SYSTEM ADJUSTMENT

3-3-1. MOTOR POWER Voltage Adjustment (MC-4 Board)

Mode: E-E
Digital voltmeter: Pin ① of CN501

[Adjustment Method]

Adjust to 5.30 ±0.05V dc with RV601.

3-3-2. Capstan Free Speed Adjustment (SV-13, SK-7 and AR-1 Boards)

Adjust in the sequence of open and short. Adjusting devices during shorting are shown in [ ].
Mode: PLAYBACK
Tape: Unused tape
Frequency counter: TP501 of SV-13 Board (CAP SP)
Connection 1: Connect TP104 (Pin ⑬ of IC101) and TP101 (REG GND) on the AR-1 Board using a 22μF/6.3V electrolytic capacitor. (TP104 is positive pole side)
Connection 2: Connect Pin ③ of CN512 (ATFLOCK) and Pin ④ of CN512 (GND) on the SV-13 Board using a jumper wire.

[Adjustment Method]

1) Open [short] TP601 and TP602 on the SK-7 Board and turn on VTR POWER.
2) Set up the PLAYBACK mode and adjust to 960 ±1Hz [480 ±1Hz] using RV504 [RV503] on the SV-13 Board.

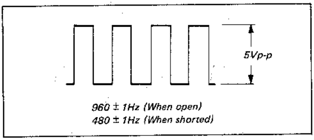

5Vp-p
960 ± 1Hz (When open)
480 ± 1Hz (When shorted)

Fig. 3-6 Capstan Free Speed Adjustment

3-3-3. ATF Balance Adjustment (VI-6 and AR-1 Boards)

Mode: PLAYBACK
Alignment tape: Operation checking (WR5-3NL)
Oscilloscope: AR-1 Board Pin ④ of CN112 (RF CH1)

[Adjustment Method]

Maximize the RF output level with RV110 on the VI-6 Board.

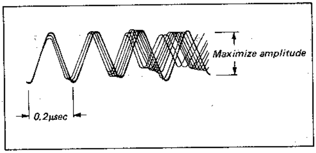

Maximize amplitude
0.2μsec

Fig. 3-7 ATF Balance Adjustment

3-3-4. Switching Position Adjustment (SV-13, VI-6 and AR-1 Boards)

Mode: PLAYBACK
Alignment tape: Operation checking (WR5-3NSP)
Oscilloscope CH1: VI-6 Board TP108 (VIDEO OUT)
CH2: AR-1 Board Pin ② of CN112
(RF SW PULSE)

[Adjustment Method]

Adjust to 6.5 ±0.3H (410 ±20μsec) using RV502 on the SV-13 Board.

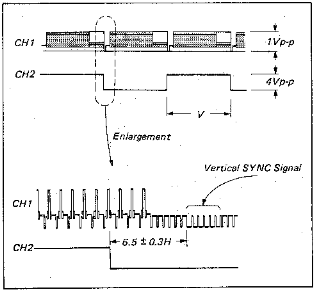

CH1
1Vp-p
CH2
4Vp-p
V
Enlargement
Vertical SYNC Signal
CH1
CH2
6.5 ± 0.3H

Fig. 3-8 Switching Position Adjustment

3-3-5. PB Pause Delay Time Adjustment (SV-13 Board)

Mode: PLAYBACK → PLAYBACK PAUSE
Tape: Self-recording and PLAYBACK

[Adjustment Method]

Adjust while watching the monitor TV.

1) Set up the PLAYBACK mode and press the PAUSE button when playback pictures stabilize to set up the PLAYBACK PAUSE mode.
2) Check that noise is not shown on the TV screen in the PLAYBACK PAUSE mode. (See Fig. 3-9.)
3) Rotate RV501 and repeat Steps 1) and 2) if noise appears.

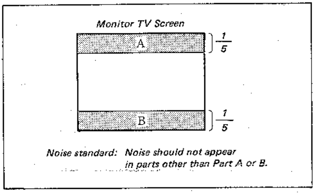

Monitor TV Screen
A
1/5
B
1/5
Noise standard: Noise should not appear in parts other than Part A or B.

Fig. 3-9 PLAYBACK PAUSE Delay Time Adjustment

3-4. VIDEO SYSTEM ADJUSTMENT

In principle, adjust the video system in the following procedure.

Color video signals fed by a pattern generator are utilized as video input signals for video system adjustment in the RECORD mode. Check that the SYNC and color burst signals match the standard designated in adjustment setting up shown in Fig. 3-2.

[Adjustment Procedure]

1) Playback video frequency characteristic adjustment
2) PB Y trap adjustment
3) X'tal oscillator fo adjustment
4) 378 fH VCO adjustment
5) Y comb filter adjustment
6) Y/C separation adjustment
7) SYNC AGC adjustment
8) VIDEO OUT level adjustment
9) PB Y level adjustment
10) Y FM carrier frequency adjustment
11) Y FM deviation adjustment
12 AC clip adjustment
13) Carrier balance adjustment
14) Chroma emphasis fo adjustment
15) REC Y recording current adjustment
16) REC C recording current adjustment
17) REC ATF recording current adjustment

3-4-1. Playback Video Frequency Characteristic Adjustment (AR-1 Board)

CH2 adjusting devices are shown in [ ].
Moed: PLAYBACK
Alignment tape: Frequency characteristic adjustment (WR5-2N)
Oscilloscope CH1: Pin ④ of CN112 [Pin③ of CN112]
External trigger: Pin ②of CN112 [Pin ② of CN112]
Trigger slope: +, [−]

[Adjustment Method]

Adjust the ratio between the 3.58 and 5.5MHz levels to 4:3 using RV102 [RV106].

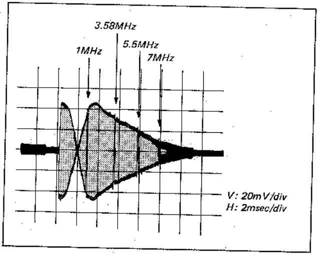


Fig. 3-10 Playback Frequency Characteristic Adjustment

3-4-2. PB Y Trap Adjustment (AR-1 Board)

Mode: Self-recording and PLAYBACK
Input signals: Color bar

[Adjustment Method]

1) Record.
2) Play back recorded portions.
3) Rotate LV101 while watching the monitor TV screen and stop rotating when the beat is minimum.

3-4-3. X'tal Oscillator fo Adjustment (VI-6 Board)

Mode: PLAYBACK
Alignment tape: For operation checking (WR5-3NSP)
Frequency counter: Pin③ of CN110

Note: Connect the frequency counter through a buffer with high impedance (approx. 10MΩ) and low capacity (less than 10pF).

[Adjustment Method]

Adjust to 3579545 ±30Hz with CV101.

3-4-4. 378fH VCO Adjustment (VI-6 Board)

Mode: E-E
Input signals: Color bar
Digital voltmeter: Pin ㉖ of IC104

[Adjustment Method]

Adjust to 3.00 ±0.05V dc with RV111.

3-4-5. Y Comb Filter Adjustment (VI-6 Board)

Mode: E-E
Input signals: Color bar
Oscilloscope: TP111 (Pin ⑨ of IC102)

Note: Connect a 22kΩ resistor serially between TP111 and 10:1 probe.

[Adjustment Method]

Adjust to 50 ±25mVp-p with RV108.

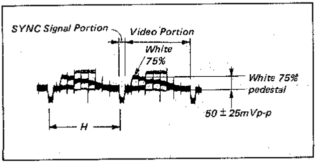

SYNC Signal Portion
Video Portion
White 75%
White 75%
pedestal
50 ± 25mVp-p
H

Fig. 3-11 Y Comb Filter

3-4-6. Y/C Separation Adjustment (VI-6 Board)

Mode: E-E
Input signals: Color bar
Oscilloscope: TP112 (Pin ㉖ of IC102)

[Adjustment Method]

Adjust RV107 and LV101 alternately to minimize residual chroma components.

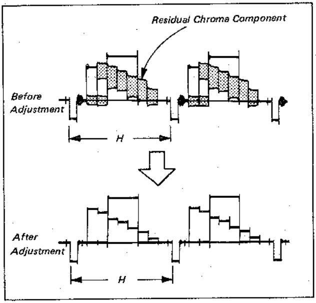

Residual Chroma Component
Before Adjustment
H
After Adjustment
H

Fig. 3-12 Y/C Separation Adjustment

3-4-7. SYNC AGC Adjustment (VI-6 Board)

Mode: E-E
Input signals: Color bar
Oscilloscope: TP103 (Pin ㊲ of IC101)

[Adjustment Method]

Adjust to 0.5 ±0.01Vp-p with RV102.

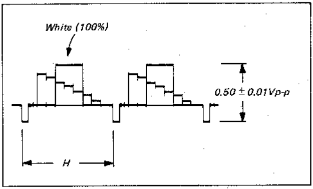

White (100%)
0.50 ± 0.01Vp-p
H

Fig. 3-13 SYNC AGC Adjustment

3-4-8. VIDEO OUT Level Adjustment (VI-6 Board)

Mode: E-E
Input signals: Color bar
Oscilloscope: TP108 (VIDEO OUT)
An AC adapter or T/T unit must be connected to the multiconnector.

[Adjustment Method]

Adjust to $1.00\,^{+0.025}_{-0.05}$ Vp-p with RV101.

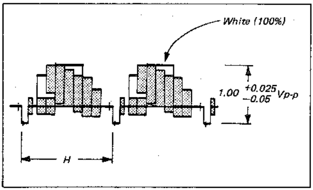

White (100%)
1.00 +0.025 −0.05 Vp-p
H

Fig. 3-14 VIDEO OUT Level Adjustment

3-4-9. PB Y Level Adjustment (VI-6 Board)

Mode: PLAYBACK

Alignment tape: For operation checking, (WR5-3NSP) color bar portion

Oscilloscope: TP108 (VIDEO OUT)
An AC adapter or T/T unit must be connected to the multiconnector.

[Adjustment Method]

Adjust to $1.00\ ^{+0.025}_{-0.05}$ Vp-p with RV106.

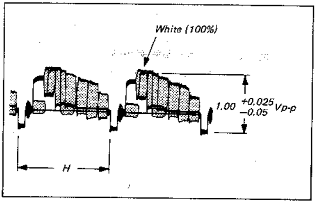


Fig. 3-15 PB Y Level Adjustment

3-4-10. Y FM Carrier Frequency Adjustment (VI-6 Board)

Mode: E-E

Input signal: None

Frequency counter: Pin ⑥ of CN009 (REC Y RF)

[Adjustment Method]

1) Rotate RV104 (AC CLIP) fully clockwise (↷) seen from the component side.
2) Adjust to 4.20 ±0.04MHz with RV103.
3) Perform steps required in 3-4-12. AC Clip Adjustment.

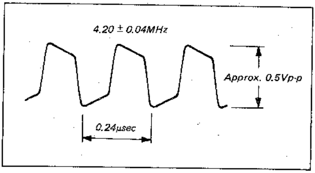


Fig. 3-16 Y FM Carrier Frequency Adjustment

3-4-11. Y FM Deviation Adjustment (VI-6 Board)

Adjustments of VIDEO OUT level, PB Y level, and Y FM carrier frequency must be finished.

Mode: Self-recording and PLAYBACK

Input signals: Color bar

Oscilloscope: TP108 (VIDEO OUT)
An AC adapter or T/T unit must be connected to the multiconnector.

[Adjustment Method]

1) Record color bar signals.
2) Play back recorded portions.
3) Check the playback output level.
   Standard: $1.00\ ^{+0.025}_{-0.05}$ Vp-p
4) Rotate RV105 as follows and repeat Steps 1) through 3) when the value does not satisfy the standard.

	RV105 rotation direction seen from component side
Larger than standard value	Counterclockwise (↶)
Smaller than standard value	Clockwise (↷)

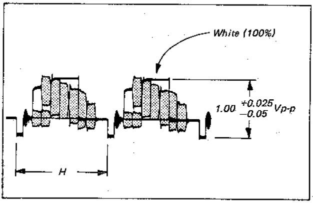


Fig. 3-17 Y FM Deviation Adjustment

3-4-12. AC Clip Adjustment (VI-6 Board)

Mode: PLAYBACK

Alignment tape: For operation checking (WR5-3NSP) monoscope portions.

Oscilloscope: TP108 (VIDEO OUT)
An AC adapter or T/T unit must be connected to the multiconnector.

[Adjustment Method]

1) Adjust to obtain normal SYNC signal portions with RV104.
2) Check that white or black smear is not shown on the monitor TV screen.

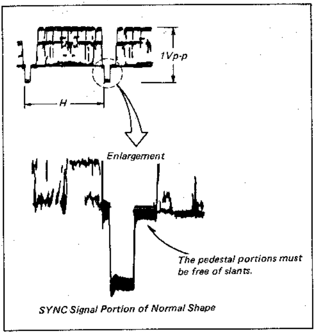


Fig. 3-18 AC Clip Adjustment

3-4-13. Carrier Balance Adjustment (VI-6 Board)

Mode: E-E
Input signals: Color bar
Oscilloscope: TP117 (Pin ㊵ of IC104)

[Adjustment Method]

Minimize the 4.32MHz component with RV109.

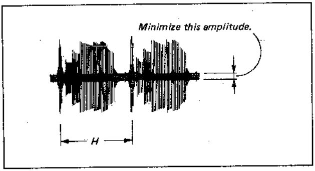


Fig. 3-19 Carrier Balance Adjustment

3-4-14. Chroma Emphasis fo Adjustment (VI-6 Board)

Mode: E-E
Input signals: Color bar
Oscilloscope: Pin ⑧ of IC103

[Adjustment Method]

Minimize the amplitude of the flat portions of chroma signals with FL105.

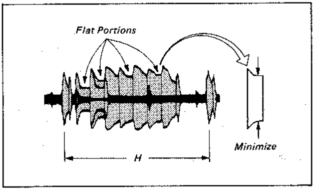


Fig. 3-20 Chroma Emphasis fo Adjustment

3-4-15. REC Y Recording Current Adjustment (AR-1 (AR-1 Board)

Mode: RECORD
Tape: MP type
Input signals: None
Oscilloscope: TP102
Connection: Connect the following three places with jumper wires.
Pin ② of CN009 (REC C RF) – REG GND
Pin ⑥ of CN008 (REC ATF RF) – REG GND
Terminal of RV104 (REC AFM ADJ) on the R125 side – REG GND

[Adjustment Method]

Adjust to 180mVp-p with RV101.

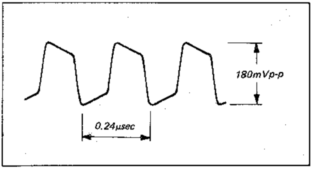


Fig. 3-21 REC Y Recording Current Adjustment

3-4-16. REC C Recording Current Adjustment (AR-1 Board)

Mode: RECORD
Tape: MP type
Input signal: Color bar
Oscilloscope: TP102 Do not use a 10:1 probe if the signal level is too small and is difficult to read. Connect directly using a 100Ω resistor as shown below.

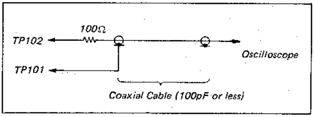


Fig. 3-22

Connection: Connect the following three locations using jumper wires.
Pin ⑥ of CN009 (REC Y RF) – REG GND
Pin ⑥ of CN008 (REC ATF RF) – REG GND
Terminal of RV104 (REC AFM ADJ) on the R125 side – REG GND

[Adjustment Method]

1) Rotate RV104 (REC AFM ADJ) to maximize the chroma signal level.
2) Adjust the red level to 36mVp-p *1 with RV105 (REC C ADJ).
3) Make REC ATF and AFM recording current adjustments as required in 3-4-17 and 3-5-3, respectively.

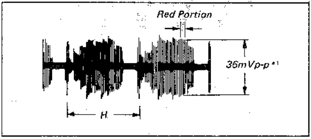


Fig. 3-23 REC C Recording Current Adjustment

*1 The adjustment value changes depending on the ratio between the burst and red levels of input color bar signals. Check the color bar signal with TP121 (VIDEO IN) on the VI-6 Board. (Refer to "Setting Up During Adjustment".)

"Burst" Level	"Red" Level	Adjusted Value (mVp-p)
0.30	0.69	38
0.30	0.66	36
0.30	0.63	34

3-4-17. REC ATF Recording Current Adjustment (AR-1 Board)

Mode: RECORD
Tape: MP type
Input signals: Color bar
Oscilloscope: TP102 Do not use a 10:1 probe if the signal level is too small and is difficult to read. Connect directly using a 100Ω resistor as shown below.

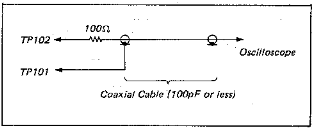


Fig. 3-24

Connection: Connect the following three locations using jumper wires.
Pin ⑥ of CN009 (REC Y RF) – REG GND
Pin ② of CN009 (REC C RF) – REG GND
Terminal of RV104 (REC AFM ADJ) on R125 side – REG GND

[Adjustment Method]

1) Adjust RV104 (REC AFM ADJ) to the mechanical center.
2) Adjust to 7mVp-p with RV103 (REC ATF ADJ).
3) Perform steps mentioned in 3-5-3. AFM Recording Current Adjustment.

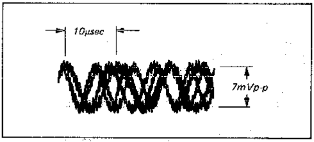


Fig. 3-25 REC ATF Recording Current Adjustment

3-5. AUDIO SYSTEM ADJUSTMENT

Connection of audio measuring instruments

Connect audio-system measuring instruments as shown below in addition to video system measuring instruments.

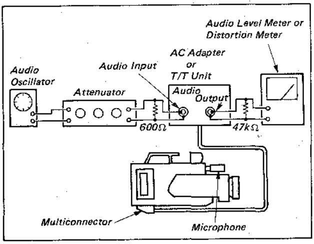

Audio Level Meter or Distortion Meter
AC Adapter or T/T Unit
Audio Oscillator
Audio Input
Attenuator
Audio Output
600Ω
47kΩ
Multiconnector
Microphone

Fig. 3-26

[Adjusting Procedure]

1) AFM carrier frequency adjustment
2) AFM deviation adjustment
3) AFM recording current adjustment
4) E-E output level check
5) Overall level characteristic check
6) Overall distortion factor check
7) Overall noise level check

3-5-1. AFM Carrier Frequency Adjustment (AR-1 Board)

Mode: RECORD
Audio input signals: None
Frequency counter: Pin ⑬ of IC401

[Adjustment Method]

Adjust to 1.500 ±0.002MHz with RV402.

3-5-2. AFM Deviation Adjustment (AR-1 Board)

Mode: PLAYBACK
Playback tape: For operation checking (WR5-2NSP)

[Adjustment Method]

Adjust the audio output level to −10.5 ±0.2dBs with RV401.

3-5-3. AFM Recording Current Adjustment (AR-1 Board)

Mode: RECORD
Tape: MP type
Audio input signals: None
Oscilloscope: TP102 Do not use a 10:1 probe if the signal level is too small and is difficult to read. Connect directly using a 100Ω resistor as shown below.

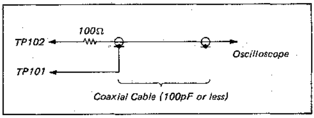

100Ω
TP102
TP101
Oscilloscope
Coaxial Cable (100pF or less)

Fig. 3-27

Connection: Connect the following three locations using jumper wires.

Pin ⑥ of CN009 (REC Y RF) – REG GND
Pin ② of CN009 (REC C RF) – REG GND
Pin ⑥ of CN008 (REC ATF RF) – REG GND

[Adjustment Method]

Adjust to 8mVp-p with RV104.

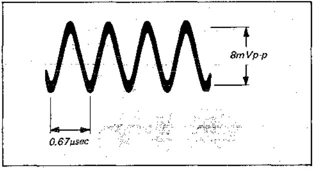


Fig. 3-28 AFM Recording Current Adjustment

3-5-4. E-E Output Level Check

Mode: E-E or RECORD
Audio input signals: 400Hz, −10dBs

[Checking Method]

The audio output level must be −10 ±2dBs.

3-5-5. Overall Level Characteristic Check

Mode: Self-recording and PLAYBACK
Tape: MP type
Audio input signals: 400Hz, –10dBs

[Checking Method]

1) Record.
2) Play back recorded portions.
3) The audio output level must be –10 ±3dBs.

3-5-6. Overall distortion Check

Mode: Self-recording and PLAYBACK
Tape: MP type
Audio input signals: 400Hz, –10dBs

[Checking Method]

1) Record.
2) Play back recorded portions.
3) The distortion must be less than 1.0%.
   (When using the filter, it should be less than 0.5%.)

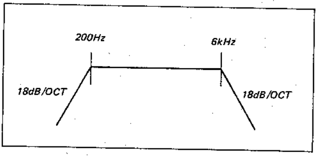


Fig. 2-29 Distortion Measurement Filter

3-5-7. Overall Noise Level Check

Mode: Self-recording and PLAYBACK
Tape: MP type
Audio input signals: None (Short audio input terminal)

[Checking Method]

1) Record.
2) Play back recorded portions.
3) The noise level must be less than –70dBs.

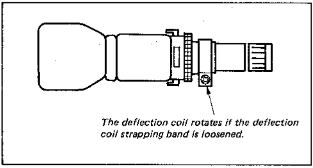
4. ELECTRONIC VIEW FINDER ADJUSTMENT

4-1. HORIZONTAL SLANT ADJUSTMENT

Alignment tape: For operation checking (WR5-3NSP)

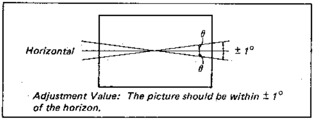
[Adjustment Method]

1) Play back the monoscope portions of the alignment tape.
2) Rotate the deflection coil while moving it closer to the fluorescent screen and fix the deflection coil so that pictures become horizontal.
   (Do not strap too strongly.)



The deflection coil rotates if the deflection coil strapping band is loosened.

Fig. 4-1



Adjustment Value: The picture should be within ± 1° of the horizon.

Fig. 4-2

4-2. CENTERING ADJUSTMENT

Alignment tape: For operation checking (WR5-3NSP)

[Adjustment Method]

1) Play back monoscope portions of the alignment tape.
2) Move the centering magnet to adjust to obtain pictures that are uniform horizontally and vertically.

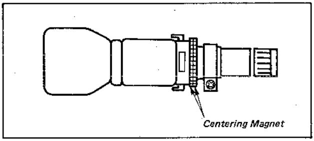
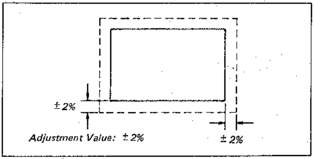


Fig. 4-3



Adjustment Value: ±2%

Fig. 4-4

Note: The centering position changes affected by ground magnetism. Rotate 360° horizontally and adjust by the displacement center portion.

4-3. HORIZONTAL AMPLITUDE ADJUSTMENT (VF-3 Board)

Alignment tape: For operation checking (WR5-3NSP)

[Adjustment Method]

1) Play back the monoscope portions of the alignmentt tape.
2) Rotate RV003 and align the top and bottom portions of the monoscope picture to the top and bottom edges of the screen.
3) Rotate RV005 to obtain the normal level of brightness.
4) Short or open the patterns (A to C) of the H-size adjusting capacitors (C028 to C030) sequentially to obtain horizontal overscanning of 8 ±2.5% (total of both left and right). (See Fig. 4-6.)

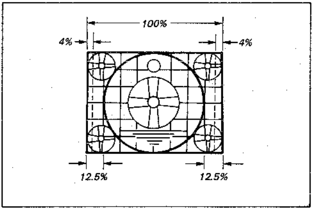


Fig. 4-5

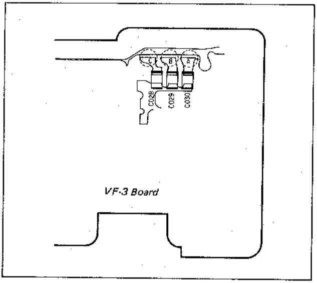


Fig. 4-6

4-4. VERTICAL AMPLITUDE ADJUSTMENT (VF-3 Board)

Alignment tape: For operation checking (WR5-3NSP)

[Adjustment Method]

1) Play back the monoscope portions of the alignment tape.
2) Adjust RV003 to obtain vertical overscanning of 5 ±2.5% (total of both top and bottom).

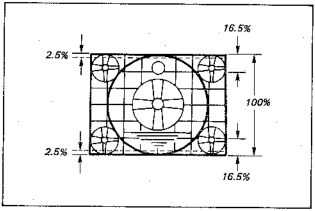


Fig. 4-7

4-5. HORIZONTAL OSCILLATING FREQUENCY ADJUSTMENT (VF-3 Board)

Preparation: Connect between Pin ⑨ of IC001 and GND using a jumper wire. Cover a white cap on the camera lens.

[Adjustment Method]

1) Turn on camera power.
2) Adjust RV001 to obtain pictures as shown in Fig. 4-8. (Flow of horizontal blanking portion (black lines) should be less than two lines.)

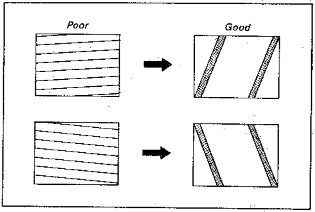


Fig. 4-8

4-6. VERTICAL OSCILLATING FREQUENCY ADJUSTMENT (VF-3 Board)

Preparation: Connect between Pin ⑨ of IC001 and GND using a jumper wire.

Equipment: A frequency counter or an oscilloscope

[Adjustment Method]

1) Connect the frequency counter or oscilloscope to the – side (DV1 terminal) of C015.
2) Adjust the frequency to 50 ±1Hz (20.0 ±0.4msec) with RV002.

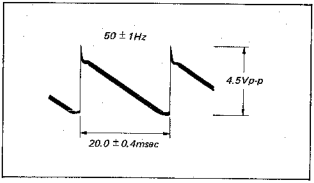


Fig. 4-9

4-7. BRIGHTNESS AND CONTRAST ADJUSTMENT (VF-3 Board)

Alignment tape: For operation checking (WR5-3NSP)

[Adjustment Method]

1) Play back the monoscope portions of the alignment tape.
2) Adjust RV004 and RV005 alternately until light and shade of the gray scale is indicated correctly. (The light portion should not be so bright that the cross hatch inside the monoscope circle blooms. The shade portion should not be so dark that the darkest and second darkest portions of the gray scale cannot be recognized.)

4-8. FOCUS ADJUSTMENT (VF-3 Board)

Alignment tape: For operation checking (WR5-3NSP)

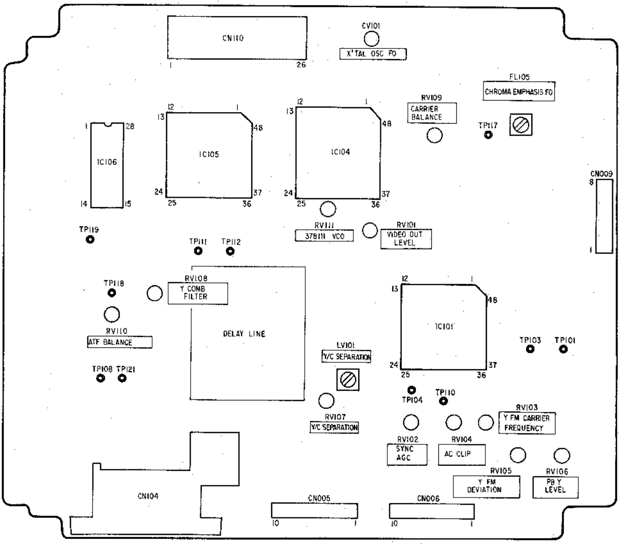
[Adjustment Method]

1) Play back the monoscope portions of the alignment tape.
2) Adjust to the best focus point with RV006.

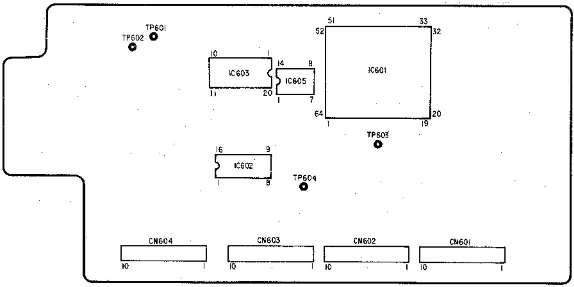
4-9. HORIZONTAL AND VERTICAL AMPLITUDE CHECKING

The parameters given in 4-3. Horizontal Amplitude Adjustment and 4-4. Vertical Amplitude Adjustment must be within the standard values. If not, readjust. Perform the steps required in 4-7 Brightness and Contrast Adjustment and 4-8 Focus Adjustment as well when making horizontal and vertical amplitude adjustment.

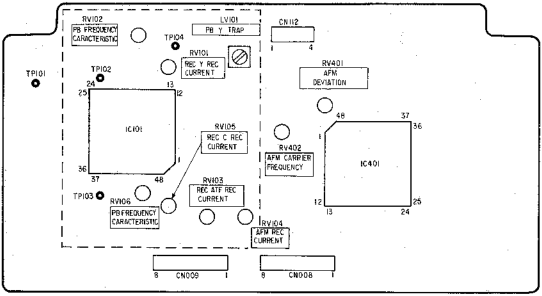
VI-6 Board (Component Side)


CN110
1
26
CV101
X'TAL OSC F0
FL105
CHROMA EMPHASIS F0
RV109
CARRIER BALANCE
TP117
1
28
IC106
14
15
12
1
13
48
IC105
24
37
25
36
12
1
13
48
IC104
24
37
25
36
CN009
8
1
TP119
TP111
TP112
RV111
378fH VCO
RV101
VIDEO OUT LEVEL
TP118
RV108
Y COMB FILTER
RV110
ATF BALANCE
DELAY LINE
LV101
Y/C SEPARATION
12
1
13
48
IC101
24
37
25
36
TP103
TP101
TP108
TP121
TP104
TP110
RV107
Y/C SEPARATION
RV103
Y FM CARRIER FREQUENCY
RV102
SYNC AGC
RV104
AC CLIP
RV105
Y FM DEVIATION
RV106
PB Y LEVEL
CN104
CN005
10
1
CN006
10
1

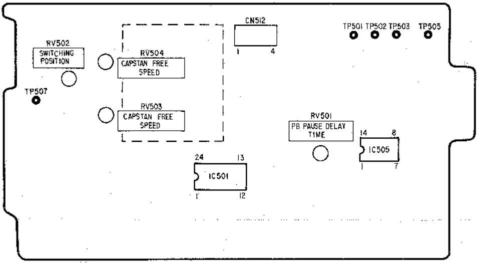
SK-7 Board (Solder Side)


TP601
TP602
51
33
52
32
IC601
64
1
19
20
10
1
IC603
11
20
14
8
IC605
1
7
TP603
16
9
IC602
1
8
TP604
CN604
10
1
CN603
10
1
CN602
10
1
CN601
10
1

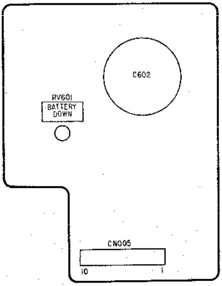
AR-1 Board (Component Side)


RV102
PB FREQUENCY CARACTERISTIC
LV101
PB Y TRAP
TP104
CN112
1
4
RV101
REC Y REC CURRENT
TP101
TP102
RV401
AFM DEVIATION
24
13
25
12
IC101
48
37
36
1
RV105
REC C REC CURRENT
RV402
AFM CARRIER FREQUENCY
IC401
36
1
37
48
RV103
REC ATF REC CURRENT
12
25
13
24
TP103
RV106
PB FREQUENCY CARACTERISTIC
RV104
AFM REC CURRENT
8
CN009
1
8
CN008
1

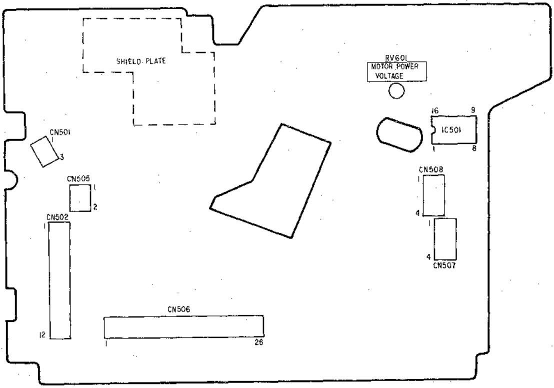
SV-13 Board (Solder Side)


CN512
1
4
TP501
TP502
TP503
TP505
RV502
SWITCHING POSITION
RV504
CAPSTAN FREE SPEED
TP507
RV503
CAPSTAN FREE SPEED
RV501
PB PAUSE DELAY TIME
14
8
IC505
1
7
24
13
IC501
1
12

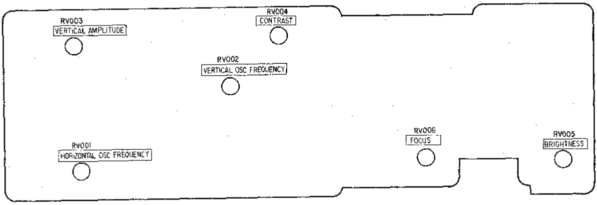
HS-4 Board (Solder Side)

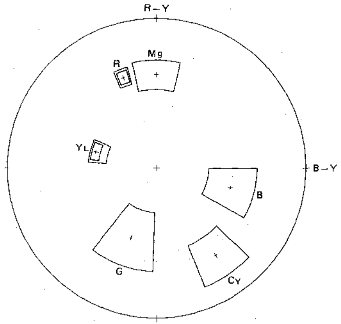

C602
RV601
BATTERY DOWN
CN005
10
1

MC-4 Board (Solder Side)


SHIELD PLATE
RV601
MOTOR POWER VOLTAGE
16
9
IC501
1
8
CN501
1
3
CN505
1
2
CN502
1
12
CN508
1
4
1
4
CN507
CN506
1
26

VF-3 Board (Component Side)


RV003
VERTICAL AMPLITUDE
RV004
CONTRAST
RV002
VERTICAL OSC FREQUENCY
RV001
HORIZONTAL OSC FREQUENCY
RV006
FOCUS
RV005
BRIGHTNESS


R – Y
Mg
R
YL
B – Y
B
G
CY

CCD-V8AFu
(NTSC)